CHEMICAL MARKETS

Established 1914

A Monthly Economic Review
of Chemistry and Industry

VOL. XX No. 23 | Published Every Thursday by Drug & Chemical Markets, Inc. | JUNE 9, 1927

Circulation of this Issue 10,138 Copies

CHEMICAL MARKETS

PUBLISHED EVERY THURSDAY
BY DRUG & CHEMICAL MARKETS, INC.
AT 25 SPRUCE STREET, NEW YORK CITY
CHICAGO OFFICE: 2017 MALLERS BLDG.
WILLIAMS HAYNES, PRESIDENT AND PUBLISHER
D. O. HAYNES, JR., TREASURER AND PUBLICATION MANAGER

THOMAS R. FARRELL, MANAGING EDITOR
FRAZER V. SINCLAIR, ADVERTISING DIRECTOR

SUBSCRIPTION RATES: $4.00 a year (52 issues) in advance. Current copies, 15 cents. Back copies, 25 cents. A Binder for this paper @ $1.00 Postpaid.

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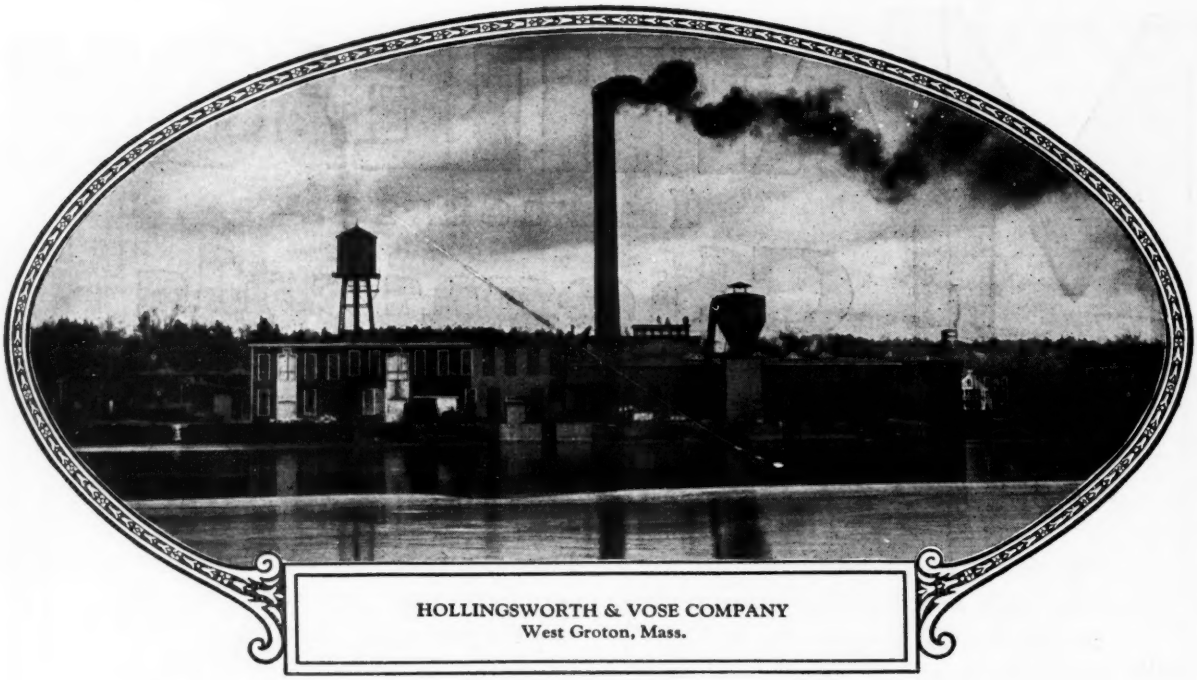

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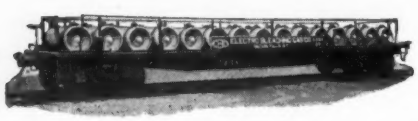

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CHEMICAL MARKETS

VOL. XX NEW YORK, JUNE 9, 1927 No. 23

International Industry

PRESUMABLY nobody expects any very tangible results from the Geneva Economic Conference. It is probably unfair to assume that all of these weighty deliberations were as empty as the gesture made by the American delegates who voted to "rationalize" the international trade in raw materials by the abolishment of customs and protective tariffs; but only a most blindly enthusiastic supporter of the League can expect any very immediate and definite action to follow the Geneva debates and resolutions.

NEVERTHELESS, taken in conjunction with the very tangible events which are developing so rapidly in the chemical industries of Germany, England, France, and the United States, the Geneva deliberations assume an importance in chemical circles that it would be foolish indeed to discount. The spirit and ideals of European industrialists are very plainly set forth here for our serious consideration, and when we see their theory being put so actively into practice, it would be an ostrich-like policy to ignore these plain signs of the future.

IT has been written for all of us to read that the leaders of those vast industries who control the world's raw materials, particularly the chemical raw materials, have laid out a program of enormous national chemical organizations in each of the leading industrial countries of Europe and a whole series of international trade agreements to mutual advantage. American chemical leaders are the very first to admit the economic and financial soundness of such projects, and they are well aware of the threat which they contain for the American chemical industry. The danger lies not in our lack of raw materials, not in the backwardness of our industrial processes, and only to a limited extent in the vaunted superiority of foreign chemical research. But as the European program perfects and extends, the American chemical industry is going to be menaced by its inability to meet the situation on equal terms. The temper of our people is distinctly antagonistic to enormous concentrations of industrial and financial power. We have laws flatly forbidding it, and even the concession which allows combination for export trade and the protection of high tariff will not be able to place us on an equally competitive basis.

THE very first law of nature places upon the chemical industry the duty of making these facts plain to Congress and arousing a national sentiment appreciative of the basic importance of the chemical industry and favorable to the new conditions of modern industrialism.

FERTILIZERS TO THE FORE

The news of last week that the du Pont Company has obtained the American rights to the Casale process for synthetic ammonia manufacture, and also to the Liljenroth process for manufacture of phosphoric acid from phosphate rock, is of more than passing importance to the American chemical industry.

Du Pont is already manufacturing ammonia in West Virginia by the Claude process; and the Electric Bond & Share interests, who previously held the rights to both the Casale and Liljenroth patents, fully anticipated the manufacture of ammonium phosphate by combining the two processes. An official of the Electric Bond & Share Corporation quite recently gave his opinion that the production of ammonium phosphate in this manner would be the process eventually used at Muscle Shoals.

With du Pont already manufacturing ammonia and also oxidizing part of it to nitric acid for explosive manufacture, the process for phosphoric acid production gives them an important additional process that will assure them of the manufacture of the most important fertilizer products. Everything, therefore, points to the fact that the du Pont Company is definitely in the fertilizer industry.

No further news since the bare announcement that a plant would be erected for fertilizer manufacture has been forthcoming from the Allied Chemical & Dye Corporation. What products they will produce and what processes they will employ at the huge project at Hopewell, Virginia, are still unknown. At the time of the announcement, speculation as to the products was rife, and ammonium phosphate, synthetic nitrate and ammonium sulfate were generally mentioned.

Two of the largest chemical manufacturing concerns of this country entering the fertilizer industry within a short space of time is most significant of the change that has taken place in the fertilizer industry. Fertilizers in this country henceforth, are to be chemicals. Just how distribution will be effected probably is still unknown to the manufacturers themselves, although the Allied has had much experience in wholesale and retail distribution of ammonium sulfate, and the du Pont Company has had like experience in the distribution of insecticides, as well as other products that call for retail distribution.

A temporary recovery in July sodium nitrate prices does not mean that the situation has basically improved. Due to the approach of July 1, when sellers terminate their price agreement and quote as they like, spot stocks here are small and importers have not committed themselves for any unsold material. Just what the price will be after the first of July is still unknown but with present demand and increasing competition from other products an increase in price can hardly be sustained over any long period.

METHANOL IN THE LISTS

Wood distillation manufacturers have lowered their prices on pure, 97 and 95 per cent methanol by seventeen cents per gallon to meet the price announced by a domestic manufacturer of synthetic material late last week. Denaturing grade remains the same as before and is now priced twelve cents higher than the pure grade. Thus starts the battle between the new and old processes in our own country. Germany's price for the pure material laid down here is reported to be 68 cents in drums, but the cost of the drums and the freight and duty on the drums make the actual cost higher. Now pure methanol is available here at 68 cents in tank cars. Certainly no higher prices will prevail unless a sold-up condition arises due to uses not now known. Lower figures are more likely as production expands and plants are amortized.

An increase of eight per cent in chemical exports in April as compared with the same month of last year is encouraging to the industry. Also the fact that exports of chemicals exceed imports, makes clear the steadily improving condition of our foreign trade. An inspection of the export figures reveals the fact that our large benzene surplus is being absorbed abroad, and also, that a fair increase in export tonnage of fertilizers was more than offset by a sharp decrease in value.

[*Ten Years Ago*]

(From Drug & Chemical Market June 6, 1917)

Grasselli Chemical Co. has declared an extra dividend of 3½ per cent on common stock.

Baugh Chemical Co., Baltimore, has sued Davison Chemical Co. for $500,000 for failure to deliver 12,000 tons of sulfuric acid.

Franklin Kalbfleisch, New York, is planning to increase output of sulfuric acid at the company's Chattanooga plant.

About 6½c per pound seems to be the inside price for caustic soda, with 6¾c a pound for as the outside price for nearly delivery.

Advertisements and solicitations for orders for grain alcohol will be barred from the mails after July 1.

Caustic potash is unusually scarce. Prices are 83c to 86c per pound for immediate delivery of 88-92 degree.

Benzol offerings are freer. Carlot business is available at prices ranging from 55c works to 57c per gallon f.o.b. works. Small quantities are quoted at 58c to 60c per gallon spot, New York.

The Chemical Industry During the Past Year

Traffic, packings, legislation, foreign commerce, and many other subjects affecting the conduct of the business of all manufacturers and consumers of chemicals are reviewed in the report of the Executive Committee of the Chemical Manufacturers Association.

IMPORTANT economic and industrial developments at home and abroad in the last twelve months impressed your Executive Committee with the necessity of directing even closer application than in the past to those Association activities which experience has proved promote economies in our operations and safeguard our interests in all contacts and relationships.

We have grown too easily accustomed to the fact of American leadership in mass production, supported by and satisfying the enormous consuming demand of our people. High wages, abundance of credit at cheap rates and the manifold evidences of healthy business activity have been accepted as a matter of course,if not as a matter of right, but we now are confronted with a condition of consistently falling commodity prices which definitely set in more than two years ago, and the effects of which upon the main currents of business are yet to be determined. Always in the past when prices declined over a long period industrial depression with consequent distress to all classes settled upon the country. In this time manufacturers, it is true, have experienced curtailment of profits, but they have wasted little energy voicing complaints of the narrowing margins between costs and selling prices; instead they have applied themselves to the job of reducing production costs to meet the lower priced market, and that without seriously disturbing existing wage levels. To this task of industry in general the manufacturing chemist has been summoned to render assistance of the first order. Economies in operation are a stern necessity and they call for the last extractable value out of materials developed in every stage of manufacture up to the finished or main product. Thus it comes about that dependence is placed upon the chemical laboratory to search out values in the waste, or to develop processes that will give it utility. Again, demand is made for new products of chemistry that will cut labor costs by simplifying processes or that will achieve similar result by improving quality of output.

The tremendous importance of this modern rule of conservation and salvage in industry is attested by one of the executives of the U. S. Steel Corporation, who recently made the statement that he expected the time would come when values realized from by-products of steel production would be great enough to meet dividend requirements of the corporation.

In the double duty of ordering our own business to meet the economic demands of the time, while bringing aid to other industries toward solution of their cost reduction problems, there has been a fair degree of accomplishment. If evidence were needed that the chemical industry is responsive to its part in contributing to maintenance of national prosperity by reduction of costs, we point to the report of the Bureau of Labor statistics of the Department of Labor, which records that the index number of chemicals, based upon 1913 at 100, was in April, 1927, 116.3, while the average of all commodities was 142.4.

Other Government reports likewise testify to creditable performance. The Census of Manufactures shows that for the period 1914-1925, inclusive, the chemical industry, measured by quantitative production gains, was surpassed only by the automotive and rubber industries. This relative position probably was maintained through 1926. Similarly, the census of Dyes and Other Synthetic Organic chemicals, compiled by the U. S. Tariff Commission, reports that in 1926 there was notable progress in the manufacture of specialty and fast dyes, with many new colors of high fastness produced for the first time in this country. The development from year to year since 1917 in the domestic manufacture of dyes and other finished coal-tar products, says the Tariff Comission, are unparalleled in the history of the American chemical industry.

Traffic and Transportation

Co-operation with the several railroad bureaus in a continuing program for promotion of safety in transportation is carried on by standing committees of experts on the various types of containers used for transportation of our products.

Two principal causes are responsible for the growing importance of these committees. One is the common purpose of carriers and shippers to substitute for old rule of thumb methods precise container specifications approved only after trial and test to determine their soundness; the other is the production of new materials coming from our plants for which transportation must be provided, and in many cases new forms of containers developed. Since by far the greater proportion of our products comes within the dangerous articles class of commodities, responsibility resting on these committees is not lightly regarded.

To the effectiveness of our co-operating efforts the Bureau of Explosives bears witness in its annual report for the year 1926. Under the heading "Acids and Corrosive Liquids", it is reported:

"The difficulties with corrosive liquids dropped off considerably in 1926. Sulphuric acid lost, for the present at least, its hold on second place in number of reported cases. The descent from 286 cases in 1925 to 172 in 1926 was abrupt, to say the least. Several firms have supplied themselves with new carboy packages of im-

proved types, or with proper testing apparatus. Beyond this fact it is difficult to assign a reason for the improvement, as a large number of carboy breakages, for example, are discovered only after the case of breaking has ceased to be apparent.

"The testing of boxed carboys by means of a standard apparatus and at semi-annual intervals, as introduced three years ago, is still producing improvement in conditions especially in the number of accidents."

Tank Car Committee

More than a year ago this committee entered upon the task of drafting recommendations for specifications for tank car tanks to be incorporated into Interstate Commerce Commission regulations. The decision of the Commission to give official effect to specifications then in use and which had been formulated by carriers' organizations, was communicated to shippers at a formal hearing on I. C. C. Docket 366, held on April 21, 1926, when they were directed to be prepared to present proposals for changes of amendments to meet special needs.

Pursuant to this notice our Tank Car Committee met in New York on May 11, 1926, and prepared a draft of specifications which were submitted to a meeting of representatives of member companies of the Association two days later. At these meetings it was made evident that the specifications proposed by the Interstate Commerce Commission were incomplete and in some cases adversely affected the interests of our members. Accordingly, it was decided that a body of specifications be prepared that should cover the shipment of products of our members coming within the control of the Interstate Commerce Commission regulations, but for which specifications had not been written by the American Railway Association or any other authority having jurisdiction.

In July, following our Tank Car Committee made an exhaustive review of the subject and prepared a comprehensive draft specifications designed to safeguard the interests of all Association members using tank car equipment. Copies of their report were circulated among members of the Association and approval was voted by your Executive Committee. Because of the vast importance of the undertaking the Tank Car Committee exercised the greatest care not only to protect member interests but to bring into agreement as far as possible non-member companies whose interests likewise were affected by the I. C. C. order. Conference with other associations wre held and where possible, a basis of co-operation was established which greatly facilitated the work. The recommendations of our committee were presented to the Interstate Commerce Commission at a hearing conducted on October 27, 1926, and we were pleased to note in the I. C. C. order of January 22, 1927, prescribing shipping container specifications for tank car tanks to be constructed after July 1, 1927, the recommendations of our Tank Car Committee were largely adopted. These official specifications will protect the interests of our membership in the shipment of all products authorized in tank car tanks built after July 1, 1927, and in addition, will permit the shipment of such products in car tanks constructed prior to July 1, 1927 until further notice of the I. C. C., providing such tanks were built in compliance with requirements in effect at the time of their construction.

A further hearing was held by the Interstate Commerce Commission on May 11, 1927, at which recommendations of our association for revisions in designs of placards used for shipments covered by the regulations were presented.

Steel Barrel and Drum Committee

The Bureau of Explosives acting under instructions from the Service Division of the Interstate Commerce Commission has undertaken a complete rearrangement of existing specifications. This work has been in progress during the past year and has advanced to a stage which will permit the Bureau to submit its recommendations.

Among the specifications revised and rewritten are those pertaining to steel barrels and drums. Specification 5-A covering steel acid drums, 55 and 110 gallon capacity, has been completely revised, several important changes being incorporated in the revision. In this work the committee has had the active co-operation of the steel Barrel & Drum Makers Association of the U. S., as well as the aid of the Bureau of Explosives staff. Development of new packages and preparation of specifications to cover has formed an important part of the committee's work. Notable examples along this line are Specification No. 5, which was altered to include smaller gallonage drums to cover rubber cement, etc., desired by the rubber industry; Specification 42-B, covering aluminum drums, for the shipment of inflammable liquids, desired by the chemical industry; changes in regulations and wording of I. C. C. specification No. 5-A to permit the use of a lead lined drum (55 gallon capacity), for the shipment of phosphorus liquid compounds, desired by the chemical industry; Specification No. 5-D covering rubber lined steel barrels and drums for the shipment of muriatic acid, etc.

This Committee also has made an extensive study of high chrome steels in their possible utilization for nitric acid drum construction. Sample drums have been put in experimental service by members of the Committee and extensive test runs have been made in fabricating drums with ascoloy metal. It has been demonstrated with practical certainty that alloys of this description will successfully withstand the action of nitric acid, subject, however, to definite limits in the sulphuric acid and muriatic acid content; such limits, however, would not preclude use for commercial white nitric and strong nitric acids. The difficulty thus far encountered has been an apparent change in the structure of the steel at the welded joints. Recent tests have tended to show the possibility of overcoming this defect through the addition of nickel. Drums recently constructed of steel containing approximately 17% chrome and 6% of nickel have successfully passed ICC No. 5A tests. There are important possibilities in the development of this package (not overlooking the dangerous phase of it) which the Committee is well cognizant of and continued attention and effort will be made toward successful development.

The close attention given to the business of this Committee, as attested by numerous entries in both regulations and specifications of the Interstate Commerce Commission compelled careful scrutiny of every docket issued by the Service Division of the Commission. This Committee has attended all hearings called on Docket 3666, experience having proved the necessity of constant attendance to protect our interests.

Poisonous Articles and Miscellaneous Packages

Due to the revision of ICC Specifications and Regulations all such pertaining to the shipment of poisonous articles, notably Class B Poisons, including dry insecticides, have been reconsidered and changes agreed to, this action being necessary by the development of the industry as well as to meet the constant introduction of new types of packages. Notable advance has been made in the development of paper bags for insecticides, methods of sealing, etc. The active co-operation of the Committee representing the Insecticide & Fungicide Manufacturers Association and the Bureau of Explosives staff in testing and passing judgment on new

(Continued on page 912)

The Principles of Employment Contracts

By Arthur L. Corbin
of Yale University

A well rounded discussion of the many problems involved in the drawing of contracts between chemists and their employers is given by a man who has studied a great many of the existing contracts

WHEN I light-heartedly agreed to examine some contracts of industrial chemists and to discuss them from the lawyer's standpoint, I supposed that my job was to analyze those contracts, explain their legal operation, and present some of the underlying legal principles of employment contracts. In some slight degree my supposition was correct; but only is slight degree. The problem is one for the social economist, the psychologist, and the moral philosopher.

To a very great extent, however, the problems of the modern lawyer are exactly of this complex sort; and at the Yale Law School we are making a conscious and sustained effort to teach our students to become social economists, psychologists, and moral philosophers. It is only thus that they can render the highest service as lawyers, and help to rid the profession of its reputation for harboring pettifoggers and tricksters. You will soon observe why our effort can be only partially successful; for not only do we have to deal with limited intelligence and imperfect human nature, just as in the chemical industry, but we are not very competent to instruct in sociology, ethics, and economics.

Some fifty forms of contracts in actual use or proposed drafts of contracts between an employer and a chemist were given me for examination. In almost every instance the most striking feature of the contract was a provision by which the employee agreed that "improvements, inventions, and discoveries" made by him should be the "property" of the employer. Many drafts dealt with this matter alone, leaving all the other terms of employment to some collateral contract of hiring, probably an oral agreement. More than half of them contained a provision against non-disclosure of confidential information, including the discoveries and improvements made by the employee. Only about a third of the drafts contained a definite provision as to salary. Even fewer specified any definite term of employment. Seven of them required a period of notice before dismissal, and five a period of notice before quitting service. A few expressly provided against participation by the employee in a competing business, either during the employment or for some specified time after its termination, and against the use of information or processes and methods used by the employer. Four drafts provided for some form of special compensation in return for valuable discoveries and inventions; and eight others professed an expectation and willingness to give extra rewards for discoveries and inventions, the amount to be wholly at the option of the employer; besides these there were occasional provisions, concerning vacations, sickness, satisfaction of the employer, and other matters. Preliminary to a discussion of these contract provisions, there are a few things to say about the contracting parties and about contract law and morality.

The Contracting Parties

In the great majority of the cases examined, the employer was a corporation and the employee an individual. In one case one of the parties was a research institute; and in another the employer was a professor of chemistry. The last named contained as strict a provision as to ownership of discoveries and inventions as did any of the others. The fact that the employer is a corporation makes no substantial difference in the law to be applied, or in the economic principles; but it may make a difference in the psychological attitude of both the employee and the officers who direct his work. It is the custom of both lawyers and laymen to personify a corporation; it is a person without a soul. But it should never be forgotten that a corporation is merely a group of human persons, and its acts are always the acts of specific human beings, each with as much of a "soul" as other men have. Their acts, however, will be considerably influenced by the fact that there is a division of function, a distribution of powers, and a limitation of responsibility. Since the corporate form of doing business has proved its convenience to the community, and since immense numbers of people have become shareholders, we should accept corporations as a matter of course, and draft our employment contracts accordingly.

Contract Law and Morality

It is the average man's view of the law that it is composed of a large number of hard and fast rules that are applied technically and mechanically irrespective of common notions of justice and morality. It is the average man's view of morality and justice that there is an absolute and eternal standard by which human actions can be infallibly judged. Some of us have been taught that each one of us has a "conscience" by which this absolute and eternal standard can be applied. From this the inference is drawn that when two persons differ, one of them must be wrong and bad. When others do not act as we think they should, we describe them as wicked and sinful or by other opprobrious names.

It is my considered judgment that this view both of the law and of morality is mistaken. Everyman's view of justice and morality is largely dependent upon his own needs and desires, and is therefore frequently different from the view of another man. On certain fundamental and frequently recurring matters, there is a tendency toward a

group agreement and toward a generally accepted standard of conduct; but such acceptance is always in varying degrees of generality and is never universal. Furthermore, with changing life conditions, even those standards that have been accepted for generations by the great majority may become unsettled, disapproved, and eventually obsolete and forgotten. The existing more are based upon the prevailing notions of what makes for happiness and survival, and the mores change as these notions change with new experience.

The law is no more hard and fast, and no more mechanical and exalt in operation, than is morality. The law, whether statutory or judge-made grows directly out of the mores, and is an attempt to translate those mores into societal action. Since there are so many changes in the mores from century to century, and even from decade to decade, the law is necessarily always changing —to restlessness and radical spirits seeming to be rushing to the destruction of all that is good and holy. Since there are so many differences in the views of individuals as to morality and justice at any one time, and since the law is merely the translation of these conflicting views into societal action by the courts and executive officers, the law always seems unjust and immoral to a greater or lesser portion of the community.

What bearing does this have upon employment contracts? It is this: the law of contract is not unchangeable; the breach of certain kinds of contracts may come to be looked upon with approval by large sections of the community, and when such is the case the juries and the judges acting for the community will gradually cease to enforce them. Is it ever consistent with justice and morality to break a promise? Unquestionably, yes. Can a contract ever lose its legal obligation? It can and does just as soon as the societal enforcement that constitutes legal obligation becomes doubtful or non-existent.

In the process of the change, there will be many lacerated feelings, many charges of unfairness, greed, dishonesty, wickedness, trickery, and fraud. The employee, when he believes his employer to be fattening at his expense will charge the employer with greed, with slipping jokers into the agreement, and will charge the law with technicality and injustice. The employer, when he believes the employee is robbing the intellectual till and breaking promises for which the full agreed equivalent has been paid, will charge the employee with dishonesty and fraud, and if a judge or jury decide otherwise will charge them with disregard of law from improper motives.

The moral of all this has already been seen by wise corporate managers and employers, by some leaders of labor union thought, by many of the more expert employees, and even by a few lawyers. It is that contracts should be so made as to square with the generally prevailing feelings and notions of the community. This is one of my underlying principles of employment contracts.

Provisions in Existing Contracts

It will not be necessary to devote much time to an application of rules of law to the various provisions found in existing contracts of chemists. It is not always easy to determine or apply these rules; for, as I have said before, both the rules and their application vary with time, place, and circumstance. But the problem is properly to be described as social and economic rather than legal. If there is dissatisfaction, and injustice is supposed to exist, it is not to be charged in any great degree to rules of law or to the courts. An examination of the forms submitted to me did not disclose any concealed legal technicalities. The purpose and the actual effect of the law of contracts is to carry out the expressed intention of the contracting parties, arriving at that intention by a reasonable interpretation of the language they have in fact used, and not by asking either party after the dispute has arisen what his intention was. No doubt courts make errors, and lawyers make specious and insincere arguments; but in this, both employer and employee are affected alike; and the only remedy lies in decreasing the number and improving the quality of those who are permitted to practice law. Your problem is to know what you ought to agree upon, and particularly how to divide the proceeds of industry and invention so as to get the largest possible amount for all parties concerned. Unless we are consumed by unprofitable envy, it will be a matter of indifference to us how much another man gets, so long as we ourselves are getting as large a share as we should get under any other system.

The amount of the weekly, monthly, or yearly salary should, of course be reduced to writing; but it is a matter of comparative indifference whether it is expressed in the same document as that providing for ownership of inventions or in a separate document. It is the employer's promise to pay wages that really constitutes the operative consideration for the promises of the employee.

Contracts are enforceable whether they are written or unwritten unless performance is certainly to extend for more than one year. A change in salary does not in itself make the other terms of a previous contract inoperative; and a provision in a written contract that it cannot be varied by a subsequent oral agreement is wholly ineffective.

The period of employment should certainly be expressly stated; and whether it is a definite or an indefinite period, is is clearly the part of wisdom to make it terminable by either party, only by given notice at some stated period in advance. Provisions as to insurance, illness, shut-downs and vacations may not be necessary; but they would frequently avoid dissatisfaction and grease the ways of progress.

If the employee promises to do his work to the satisfaction of the employer, it should be made clear that the employer's expression of dissatisfaction is not conclusive. It would be wiser to omit the provisions altogether, since the parties would be sufficiently protected by the power to terminate the employment by giving notice, and by the fact that either party would be privileged to stop performance in case of any clear and substantial breach by the other.

A promise by the employee not to engage in any competing business during the term of employment, or for a reasonable but short period after its termination, is lawful, and in some cases may be economically necessary. A contract to give one's entire time and effort to the business is certainly reasonable. Restrictions on employment after the parties have separated are not regarded with favor; but they will be enforced if the restriction is regarded by the court as reasonably necessary to the employer's protection. The reasonableness would generally depend upon the knowledge of business and trade secrets that the employee could use to steal business for a competitor.

Business and Trade Secrets

A promise to keep a secret is as binding in law and conscience as any other promise. To make it binding

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Once produced by twenty-seven makers at a cost upwards of $2.00 per pound

Potassium Permanganate

is now made by one manufacturer to supply the market at 15c per pound

By EDWARD H. CARUS
Carus Chemical Company

MANGANESE ore, from which potassium permanganate is made, has been known for a long time. The classical Greeks considered manganese as the feminine for iron even though they only knew it in the form of manganese dioxide. The principal tonnage of this material is now converted into ferro-manganese and is used for steel refining, and is thus closely associated with iron to-day.

During the beginnings of modern chemistry, the metallic constituent of manganese dioxide was first called magnesium, then manganesium, as it was thought the same element was present which occurs in magnesite. It was, however, found that different elements were involved; the one was called magnesium and the other manganese.

Students of chemistry to-day do not appreciate the slow and difficult development of our chemical knowledge; our customs officials still frequently confuse magnesium and manganese salts, in reporting importations, probably due to the similarity of the names.

Potassium permanganate was first described by chemists about 150 years ago. Glauber and Schelle noticed the changes in color obtained by diluting manganate solutions with different amounts of water. The early chemists called it "Chameleon Mineral" because of the characteristic changes in color, which it shares with the lizard by this name.

Some of the properties of permanganate were demonstrated to the public at the First World's Fair ever held at the International Exhibit in London in 1862 by an English manufacturer, Condy. He placed sodium permanganate solution on the market, and this is still described in chemistry books as Condy's Fluid. Condy popularized the household uses of permanganate, as a general deodorant for example, to treat foul smelling cisterns, general disinfectant for men and animals for wounds, as well as a throat gargle.

About 1870, an English nobleman in India found that potassium permanganate crystals can be used with excellent results in the treatment of snake bites and that the crystals can be inserted in the wound without harm to the patient. On this account explorers, campers, and men who live in snakey regions carry a small amount of potassium permanganate, and this has evidently saved many a life. It is of course necessary to apply this remedy promptly before the poison spreads throughout the system.

Charles Mayer, the naturalist and wild animal collector, in writing for the magazine "Osia" mentions how potassium permanganate, which he carried with him on hunting expeditions, was useful and effective in the treating of a raging bull elephant whose sores the flies and gnats were irritating.

Potassium permanganate is a very powerful oxidizing agent; a strong solution in touch with human skin produces ozone, as anyone can easily verify. It has many valuable properties in its use for skin troubles, clearing up such skin infections as poison ivy and impetigo. It is also an effective deodorant. In Europe where ice boxes are rare, potassium permanganate is used for removing the odor from meats and also for preserving it from decay. When carbon dioxide is recovered from fermentation, the odors are removed by bubbling it through a potassium permanganate solution, thus making the carbon dioxide marketable and pleasing to our youth, which consumes large amounts of this in soda water.

All these uses are very interesting but of little benefit to a manufacturer, because the quantities used are negligible.

Potassium permanganate is used in various industries because of its decolorizing properties. On decomposition potassium permanganate forms a precipitated manganese dioxide which has a remarkable affinity for nearly everything and absorbs coloring materials. This use is constantly growing.

Before the war all potassium permanganate was imported from Europe and was used principally for fumigating and the manufacture of saccharin. Everyone knows, who has followed chemical markets, that the price of potassium permanganate rose abruptly during the war period. Why should the war have effected the price so much?

Before the war the average quoted price was 9 cents per pound and heavy imports came in from Europe during the first year of the war. During this time the price rose to one dollar per pound. When imports stopped the price rose further to four dollars per pound. Gradually American firms began to manufacture and there were twenty-seven manufacturers listed as makers of this material although the manufacture is a series of very delicate operations, and considerable and expensive experience is necessary before the yields are reasonable. Many of those starting manufacture actually produced very little finished material, and there was therefore never very much available.

The economic question is, what was the cause of this tremendous demand?

Many years ago there was a Dutch owner of large sugar plantations in Java, who was desirous of increasing the consumption of sugar. He persuaded the German-military authorities that cane sugar is an excellent

food for tired soldiers which gives them energy quickly, and is therefore of value for forced marches. No doubt all of the warring nations commandeered every bit of available sugar for their armies and encouraged the civilian population to substitute Saccharin, which is made from potassium permanganate.

The direct war uses of potassium permanganate were of course important. Permanganate is very important to prevent the spread of disease and also for gas masks.

In the last year of the war, a factory in Japan started production on a large scale, and the various domestic manufacturers began actual production also. The price broke to $1.30, and then American manufacturers complained to the authorities in Washington of this menacing competition. We ourselves at one time did not see how we could produce below $2.00 per pound, but it is remarkable how high costs mount under pressure of rushing production, and how they can be reduced by steady economical improvements.

When the war came to an end the demand for saccharin was very much reduced, this causing a drop in the price of permanganate from $1.30 to 50c per pound. With this drop, all American manufacturers of permanganate discontinued the making of this product except Carus Chemical Company.

Since the war potassium permanganate has been used as a fungicide as a treatment for oranges as well as bulbs, and also some kinds of seeds. It is used for treatment of palm smut, rust on hollyhocks, and similar fungus growth.

In our plant we are using considerable tonnage in producing benzoates free from chlorine or nitrates which makes these compounds especially desirable for food preservation.

Fluorine Compounds Expanding

DURING the last few years the fluorine compounds have been receiving quite a fair amount of attention. The patent literature of leading countries has contained many references to these products and much work has been done in extending their application to industry, says "The Chemical Trade Journal," London.

Fluorine itself has been made in rather more than laboratory quantities in America, while this country is also responsible for the most recent figures on the properties of anhydrous hydrofluoric acid. The manufacture of the commercial acid has advanced a step further, in that the standard strength is now raised to 65 per cent HF and, by co-operation between spar mines and makers, the more troublesome impurities, such as silica have been greatly reduced. The price, however, at which the acid and salts can be made is still too high to allow of their adoption in a considerable number of cases, while in this country conditions are such as to make the more economical manufacture of the acid almost impossible for the time being.

Numerous suggestions and many trials have been made to use fluorine compounds for the preservation of timber. A brief survey of the literature on the subject leaves one with somewhat confused ideas, since opinion and result vary enormously. It seems to be quite definitely established that for certain classes of timber, i. e., pit props and such like, fluoride of soda has proved itself of great value, the prevailing opinion being that sodium fluoride with sodium nitrophenate forms an excellent preservative, combining good penetration with high toxicity.

Much work has been done during the past few years on the use of fluorine compounds for insecticidal purposes. The efficiency of fluoride of soda in killing roaches and chicken-lice is now well established and quite fair quantities are used for this purpose. For the preservation of clothes against moths, many of the new preparations have

(Continued on Page 910)

Who's Who in the Chemical Industry

Eimer Kaiser Bolton, dir., chem. sec., Dyestuffs Dept., E. I. duPont de Nemours & Co., Wilmington, Del. Born: Philadelphia, June 23, 1886. Educat.: Bucknell Univ., A. B., 1908; Harvard, A. M., 1910, Ph.D., 1913. Mar.: Marguerita L. Duncan, Phila., Dec. 6, 1916. Child.: two. Bus.: Experimental Station, 1915-17, Chem. Dept.; Organic Div., 1917; asst. mgr., Lodi Wks., 1918; mgr., Organic Div., Chem. Dept., 1919-21; dir., Chem. Sec., Dyestuffs Dept., 1921 to date. Mem.: Chemists Club, Amer. Chem. Soc.; Amer. Inst. of Chem. Eng.; Franklin Inst.; Soc. of Chem. Ind.; Soc. of Dyers & Colorists; Phi Kappa Psi, Alpha Chi Sigma, Wilmington Country Club, DuPont Country Club. Hobbies: golf.

Boyce Chupp Bond, chief chemist & asst. mgr., Dyestuff Corp. of America, Boston. Born: Lithonia, Ga., July 5, 1894. Educat. Lithonia High School; B. S., T. E., 1916-17, Ga. School of Technology, Atlanta, Ga.; Alexander Hamilton Institute. Bus.: Asst. supt., Summerville Cotton Mills, Somerville, Ga., 1917-18; chief insp. textiles, Q.M.C., U. S., 1918-19; chief chemist, Charleston, W. Va. plant, E. C. Klipstein & Sons Dye Mfg. Co.; supt. dyeing, Swift Mfg. Co., Columbus, Ga., 1920-21; chief chemist, Atlantic Dyestuff Mfg. Co., Portsmouth, N. H., 1921-22; chief chemist & asst. mgr., Dyestuff Corp. of America, 1922 to date. Public Record: 1st Lieut., chief inspector of Textiles, Q.M.C., U. S. Mem.: American Ass'n. Textile Colorists & Chemists, (charter mem.); Dry Salters Club, Boston; Phi Psi Fraternity, Hobbies: tennis, football.

J. Allington Bridgman, sec., and prod. mgr., Wilbur White Chem. Co., Owego, N. Y. Born: Penn Yan, N. Y., July 23, 1892. Educat.: B. Chem., 1914, Ph.D., 1917, Cornell Univ. Mar.: Greta Conklin, Owego, July 26, 1922. Child.: (2) son, daughter. Bus.: E. I. duPont de Nemours & Co., 1917-20; Wilbur White Chem. Co., 1920 to date. Mem.: Alpha Chi Sigma.

Walter Burrows Brown, v. p., Victor Chemical Wks., Chicago. Born: Lee Co., Ill., April 23, 1874. Educat.: U. of Ill., B. S., 1897, M. S., 1905. Mar.: Antoinette Farren, Paris, France, Jan. 23, 1906. Bus.: Asst. chem., C. & N. W. R.R., 1899; chief chem., Morris & Co., 1900-03; Victor Chem. Wks., 1903 to date, in various positions, now v. p. Mem.: University, Midland.

Horace T. Dumont, president, Dumont Fertilizer Co., Inc., Philadelphia, Pa. Born: Philadelphia, Pa., April 24, 1872. Married: J. Virginia Brown, Philadelphia, June 10, 1916. Children: (2) son and daughter. Education: Graduated from Friends Central School, Philadelphia, 1890. Business: Engineering Dept. of Baldwin Locomotive Works; general manager, Martin Fertilizer Co.; Wilson & Co.; organized Dumont Fertilizer Co., Inc., in 1921. Member: Athletic Club of Phila.; University Lodge No. 610, F. & A. M. Hobbies: "Squash" double and single court.

Leslie Goddard Matthews, asst. sales mgr., American Smelting & Refining Co., New York; Born: Brooklyn, N. Y., 1890; Educat.: Lehigh Univ., B. S. 1913. Marr.: Helen Swedes, Seattle, Wash., 1919. Bus.: Territorial mgr., North China Dept., Standard Oil Co. of N. Y., 1913-19; sales mgr., E. I. duPont de Nemours Export Co., 1919-22. Mem.: Spring Brook Country Club, Sigma Chi Fraternity.

Low Temperature Carbonization of Coal

The fact that when carbonization of coal is carried on at 450° to 500° C., the yield of tar is two to three times as great as that of the ordinary high temperature process now employed for making coke or gas, makes universal use of low temperature carbonization appear certain. A recent report to the Department of Commerce is extracted here.

By A. C. Fieldner

LOW-TEMPERATURE carbonization of coal is a subject of interest at this time when some concern is being felt as to the future supply of petroleum. It may be defined as the heat treatment of coal in absence of air at temperatures of 450 degrees to 700 degrees C. as distinguished from the usual high temperature carbonization at temperatures of 900 degrees to 1,200 degrees C. The aim is to keep the temperature low enough to prevent the decomposition of the primary tar, and thus obtain the maximum yield of liquid products and at the same time produce a solid smokeless fuel. At 450 degrees to 500 degrees C. the tar yield is two to three times that of the ordinary high-temperature process for making coke or gas.

The reasons for the many attempts to devise low-temperature processes that would work on a commercial scale are as follows, 1. To obtain a larger yield of liquid fuels than can be obtained from high-temperature processes. 2. To provide a smokeless, easily ignitible solid fuel for domestic purposes. 3. To obtain a dry, easily pulverized, highly combustible, low-volatile material for pulverized-fuel furnaces, and at the same time to recover by-products. 4. To obtain a substitute for low-volatile semibituminous coal, for mixing with high-volatile swelling coals in order to make a suitable dense metallurgical coke. Of these four objectives, the one common to all low-temperature processes is the increased yield of oil or tar.

Methods of Heating

The fundamental difficulty in carbonizing coal at low temperatures is in transferring heat to the coal in a reasonably short time when a relatively low-temperature gradient is used. Coal is a poor conductor of heat. It takes much longer to transfer the necessary amount of heat through a given volume of coal when the retort walls are at a temperature of 500 degrees C. than when they are at 1,200 degrees, as in the usual high-temperature process. As the cost of the operation depends in a large degree upon the installation charges per ton of coal carbonized it becomes necessary to accelerate the rate of carbonization, either by spreading the crushed coal in a thin layer on a heated surface or by agitating the coal, bringing fresh portions continually in contact with the heated walls, or by passing large volumes of hot producer gas, products of combustion, or superheated steam through the mass of broken coal.

Differentiated on the basis of method of heating the various processes fall into two classes, namely, (1) externally heated retorts in which the coal to be carbonized is supplied with heat through the walls of the retort and the products of distillation are not diluted with flue gases, and (2) internally heated retorts in which the coal to be carbonized is heated by direct contact with hot gases or superheated steam passed through the retort in intimate contact with the charge.

Carbonization processes may be intermittent, those in which the coal is charged into an empty retort and remains there until distillation is completed, when the entire mass of coke or residue is discharged at one time; or they may be continuous, those in which charging and discharging are continuous or in small increments.

Present high-temperature processes of by-product coke making are intermittent, because intermittent processes generally produce firm and lumpy coke. Continuous vertical retorts are coming into considerable use in the gas-making industry because continuous processes favor larger outputs and cheaper operation. The coke, however, has physical properties somewhat inferior to those of coke produced by intermittently charged retorts.

As to the style of construction, retorts may be classified as follows: (1) Oven types, usually of rectangular shape, as the standard by-product oven; (2) vertical shaft types, as the vertical gas retorts or the Scottish oil-shale retort; and (3) rotating-cylinder types, vertical, horizontal, or inclined, similar to revolving driers or cement kilns; the cylinder type may also be stationary and have a revolving internal stirrer.

Parker Process

The latest modification of the coalite process of the Low Temperature Carbonization (Ltd.), of England, is a return to the castiron vertical retort originally proposed by Parker in 1908. This retort is of small diameter and is intermittently charged.

From the results that are given in the table below, it will be observed that the temperatures were 100 degrees to 300 degrees C. above that of the usual low-temperature processes. This accounts for the volatile matter in the coke being 6 per cent instead of the normal figure of 10 per cent. The tar also suffered some cracking, and the result was a relatively high yield of

light oil and gas, as judged by strictly low-temperature standards.

Tests of this plant by the fuel research station of England showed the following yields:

Results of tests by fuel research station of Barnsley plant

Coke (6½ per cent volatile matter)	per cent..	70
Gas (700 B. t. u. per cubic foot)	cubic feet..	5,620
Crude tar (dry)	U. S. gallons..	20
Ammonium sulphate	pounds..	12.2
Crude light oil from gas	gallons..	1.9
Refined motor spirit to 170° C.	do....	1.5
Retort temperatures	°C..	600 to 800
Volatile matter in coal	per cent..	35

Wallace Process

In the United States Wallace proposed a vertical cast-iron cylinder of larger diameter than the Parker retort. In order to increase the rate of carbonization and avoid cracking the tar by the hot walls, Wallace fixed in the center of the retort a perforated tube, closed at the top, through which the gases and vapors are withdrawn, thus pulling them through the cold coal away from their usual course through the hot coke and up along the retort walls. This type of retort should give high yields of primary tar. As yet, no commercial plant has been constructed.

Rolle Retort

In Germany the same principle of withdrawing the gas to the unheated center has been used for years in distilling the rich brown coals for their wax and oil content. The brown coal is charged continuously at the top and descends in a 4-inch annular space between cast-iron rings, arranged in Venetian-blind fashion, that form the inner cylinder and the heated fire brick that form the outer shaft. The distillation products are drawn into the interior space and out through the bottom of the oven. The brown-coal residue is a charcoal-like granular material about the size of rice. To minimize cracking of the oils the temperature in the retorts is not permitted to exceed 450 degrees C. The output is low, only 4 tons per retort in 24 hours, and the first cost and the space occupied per ton of material carbonized are high. The use of the Rolle retort is limited to the soft, earthy, noncoking brown coals of Germany, and even there efforts are being made to develop retorts of much higher capacity which employ internal heating by hot gases.

Piron-Caracristi Process

The Piron-Caracristi process adopted by Ford Motor Co. has attracted much attention. An oven with a capacity of 400 tons a day, about 50 feet long and 4 feet wide, was completed in 1924 at Walkerville, Ontario. This plant is adjacent to the power plant there, burning pulverized fuel in which the pulverized semicoke was to be burned. The process is as follows:

The crushed coal is charged into a series of shallow cast-iron pans 36 by 18 by 1 inch deep, which are part of a continuous chain belt. The coal layer is about five-eighths inch deep. Heat is applied to the coal through a bath of melted lead. The pans float on this bath and are dragged from one end of it to the other. The temperature of the bath is maintained by burning gas in cast-iron flues immersed in the lead, which is contained in a water-cooled tank made of clay refractories. As the temperature of the lead can be readily ascertained and controlled, the coal is subjected to a uniform definite temperature by the transfer of heat from the lead through the iron pan to the thin layers of coal in the pans.

The volatile matter evolved escapes to the condensers through ducts in the wall of the distillation chamber over the lead bath without being subject to higher temperatures than were intended.

Although the quantity of coal in each pan is small the time necessary to permit satisfactory carbonization of the thin layer of coal is so short (less than five minutes is the claim) that the furnace as a whole may have a large daily output.

M'Intire Retort

The most recent type of the externally heated, internally stirred horizontal type of retort is that designed by C. V. McIntire, and now operated on an experimental basis by Consolidation Coal Products Co. at Fairmont, W. Va. This retort, shown is a modification of the primary carbonization retort of the "Smith" or carbocoal" process installed at Clinchfield, Va. The original carbocoal retort was not practical because the stirrer arms broke under the resistance of the pasty, fused mass of coking coal, and because other difficulties arose. The McIntire retort is reported to have solved this problem and to have successfully carbonized coal from the Pittsburgh bed, a coking coal, for considerable periods at the rate of 50 tons a day.

Yields from McIntire retort, per ton of coal charged

Semicoke (12 to 14 per cent volatile matter)	per cent..	75
Gas (875 B. t. u. per cubic foot)	cubic feet..	3,000
Crude tar oils (1.080 specific gravity)	gallons..	30
Ammonium sulphate	pounds..	10

In this retort the moving metal parts operate at a much more favorable temperature (450 degrees C.) than in the Piron-Caracristi retort, yet it is a question whether the cost of maintaining this mechanism may not prove too high for profitable commercial use.

German Investigations
Thyssen Retort

This German retort consists of a horizontally mounted steel cylinder 2.6 meters (8½ feet) in diameter and 23 meters (75½ feet) long (fig. 8). Spiral ribs on the inner surface carry the charge of coal through the retort, which is said to have a capacity of 100 tons per 24 hours. The maximum temperature inside the retort is 500 degrees C. (932 degrees F.), and the fuel consumption is 8 per cent of the coal carbonized. Judged from the samples of low-temperature coke displayed, the coals carbonized wer noncaking. Fusing coals would stick on the walls of the retort, retard the transmission of heat, and cause eventual failure of the steel by overheating.

Because of the unusually high content of ethylene, propylene, propane, and other easily condensable gases in the gas from the retort, the Thyssen Co. has installed a Linde liquefaction apparatus for the separate recovery of these constituents and the light oils.

The average analysis of gas from a Ruhr noncoking coal is as follows:

Analysis of gas from Ruhr coal

	Per cent
Ethylene (C_2H_4), etc.	8
Ethane (C_2H_6), etc.	15
Methane CH_4	34
Carbon dioxide (CO_2) + H_2S)	10
Carbon monoxide (CO)	6
Hydrogen (H_2)	12
Oxygen (O_2)	1
Nitrogen (N_2)	14
	100

One of the big drawbacks of retorts of the rotary type is the dust created by the tumbling coal. Special dust separators are required to throw down the dust from the hot gases before the tar begins to condense. Even with such dust-collecting equipment the tar is likely to contain from 1 to 2 per cent of dust. A high content of dust seriously impairs the market value of low-temperature pitch, especially if the pitch is used as a binder for briquets.

RESIN ESTERS

Substitutes for copal resin or gum copal are attracting increasing attention from lacquer makers. Methods of manufacture and the proper apparatus are given here.

THERE are a great many different substances which have been used as substitutes for copal resin or gum copal in the manufacture of lacquers and other products. Many of these substitutes do not meet the requirements of the manufacturers who use copal and who expect that the substitute should possess some of the properties of the natural product. There are two groups into which the various substitute copals may be divided. First there are those substitutes which can be further split, such as metallic resinates, and are decomposed by the action of water, and secondly there are those which cannot be further decomposed.

In the first class belong lime resinate, lime resin, hard resin, and preparations composed of calcium resin, manganese resinate, lead resinate and like compounds. Glyceryl ester resinates, as patented under German Patent No. 32,083, contain principally resin esters, to which are added drying agents and metallic oxides in small amounts. The second class of copal substitutes contains such products as are patented in German Patent No. 128,034, ambrol gums and the like.

The resin esters are a very important part of the substitutes for natural copal. They possess almost all the advantageous properties of natural copal, such as great hardness and satisfactory resistance to chemical and atmospheric influences. They are superior to the natural copals in that they are practically neutral, meaning that lacquers and varnishes made from them can be mixed with basic zinc and lead pigments without causing thickening of the product.

Commonly considered esters are compounds of organic or inorganic acids with alcohols, which means that the acid radicle combines with the alcohol radicle and water of reaction is set free. In the particularly case of the resin or rosin ester, the acid portion is represented by rosin, that is abietic or resinic acid, and glycerin occurs predominately as the alcohol. The reaction that takes place between these substances to form the rosin ester is as follows:—

$$3C_{19}H_{29}COOH + C_3H_5(OH)_3 = (C_{19}H_{29}COO)_3C_3H_5 + 3H_2O.$$

Abietic acid glycerin rosin ester water

The quantity of glycerin added depends on the acid content of the rosin. This acidity is determined by the establishment of the acid coefficient, which can be converted into terms of glycerin. Thus 9.3 kilograms of glycerin are theoretically required for one hundred kilograms of rosin for esterification. In practice it is necessary to work with a somewhat greater quantity of glycerin since the water content of glycerin must be taken into consideration.

It is not necessary to determine the acid coefficient for each batch of rosin, for the difference in this coefficient is very small. On the other hand it is advisable to make a definite analysis of the rosin of a certain origin and use the acid coefficient for this rosin in the manufacturing process. Thus the American, Spanish and French rosins will have different acid numbers.

The maximum addition of glycerin is approximately twelve to fourteen per cent. The use of twenty per cent of glycerin is unquestionably too high, for a great excess only has a harmful effect on the lacquer or varnish. The reaction begins at a temperature of approximately 150 degrees C, and this is recognized by the strong swelling of the mass and the evolution of vapors. Complete esterification takes place at a temperature of approximately 270 degrees C. The melt which is turbid up to this point and has a milky appearance, becomes clear and the reaction begins to cease. Heating to a temperature in excess of 300 degrees C is not advisable, for the ester can be readily decomposed at this point. In order to determine to what extent the ester has been neutralized, the determination of the acid number is again resorted to. The practical varnish maker can also assist by taking a certain quantity of the ester, dissolving it in the customary varnish diluents and grinding it with white lead or red lead. Those esters which have not been sufficiently neutralized will thicken after a short time. A completely neutralized ester must remain fluid after having stood for weeks in contact with white lead and red lead.

The details of the making of rosin esters are multitudinous, and this applies not only the actual operations but also the apparatus used therein. The most commonly used method is to melt the rosin, maintaining it at a temperature of 150 to 160 degrees C, and then add approximately ten to twelve per cent of glycerin, thereafter it is heated to a temperature of 2560 to 2700 degrees C. The whole procedure is carried out exactly like the hardening of rosin in ordinary kettles. An ester prepared in this fashion is never practically neutral. It possesses the disadvantages that it will thicken in the presence of lead and zinc colors, turns white on the addition of water and what is more important than anything else, it is not sufficiently resistant to the action of chemicals and the atmosphere. A large number of esters of this sort were found to have an acid number of 60 to 70, which means that the esters were neutralized only to the extent of two thirds. The reasons for this faulty manufacture are to be looked for in the apparatus. The esterification can be carried out in this process with the addition of twenty per cent of glycerin, only to find that no better result will be obtained. It is really not possible to obtain a better grade of rosin ester by this process.

IN United States Patent No. 1,395,874 zinc salts are used for the acceleration of the esterification of resins, particularly rosin, with the aid of glycerin. A vessel is used, provided with an acid-proof lining and also a reflux condenser, and one hundred and fifty parts of rosin are heated therein in admixture with twenty parts of glycerin and half a part of zinc dust, the operation being prolonged for half an hour at a temperature of 275 to 280 degrees C. The condenser is then removed and the temperature is raised to 310 degrees C, in order to drive off the excess water formed in the re-

action and the residual glycerin. A resin ester with an acid number of only 0.9 is obtained by this process. Zinc oxide and zinc carbonate can also be used.

German patent No. 32,083 protects the process of preparing esters from rosin with or without the addition of water-absorbing substances and with the addition of alcohols and similar substances, such as mannite, resorcin, carbolic acid and the like. All these substances are heated together under pressure. These esters are quite neutral or only weakly acid.

An interesting process for esterifying resins is the following. Five hundred parts of rosin, sixty two parts of glycerin and seven and one half parts of yellow tung oil (china wood oil) are heated together in a copper varnish kettle. A period of three hours' heating is sufficient to effect complete reaction. In order to reduce the foaming to the minimum degree and in order also to avoid a loss of glycerin on subsequent heating, it is desirable to raise the temperature of the mixture at a very slow rate between 190 and 210 degrees C. The kettle should be provided with a condenser (a reflux condenser), which condenses the glycerin, but allows the water to evaporate. The rosin ester which is prepared in accordance with this process should have an acid number of between six and twelve, and has therefore been sufficiently neutralized for all practical purposes.

ANOTHER process (described in Farbe und Lack 1925, page 421) consists in melting 272 parts of rosin and gradually adding 32.5 parts of glycerin with constant stirring and heating to a temperature of 204 degrees C. The mass is then heated up to a temperature of 290 degrees C for so long a time until esterification sets in and then 1.35 parts of limestone are added. This rosin ester may also be hardened by the addition of Congo copal, of which approximately ten per cent is sufficient. In order to avoid the discoloration of the product, the work should be carried out in a closed apparatus. The acid number of this ester will vary between five and ten.

The one effect striven for in all the methods of manufacturing these esters is the removal of the slight amount of acid that still remains in the products by the addition of metallic compounds of various sorts. It is evident right at the outset that, aside from the better neutrality of the ester, the metal resinate which is formed in this manner does not enhance the properties of the ester in any way. It it true moreover that the presence of the metallic compounds has a harmful effect on the quality of the ester. For then the ester is not in the pure condition at all, but consists rather of a rosin ester with a definite amount of hardened rosin, which is not suitable for making lacquers employed on visible objects. It is moreover particularly true that the addition of lime salts has a very harmful effect on the quality of the ester, and this product, that is, an ester saturated with lime, must by no means be used for making a lacquer or varnish that frequently comes into contact with water. When such a product comes in contact with water, it will be found that the film of lacquer will become white, and will eventually be destroyed.

The esterification of the rosin or resin can be particularly accelerated by the addition of a small amount of water-absorbing substances to the melt. Boric acid is mostly used for this purpose, and is added in the proportion of one to two per cent. The ester obtained in this manner is either run out into shallow pans and allowed to harden or it is directly manufactured into the lacquer by the addition of oil.

As far as the apparatus used for the manufacture of these esters is concerned, it must be said right at the beginning that the open kettle should not be used for this purpose. It is true that it is largely used, but it is good practice to avoid it. Its use may be assigned to the fact that the production of these esters is small in most paint works and hence there is no desire to invest in complicated apparatus for carrying out these operations. However, it must be remembered that the process of making esters from rosin and other resins is an operation which requires just as much care as some of the other processes carried out on the paint works, and it is necessary to exercise a certain amount of care and technical skill in carrying out the operations if good results are to be obtained. Esters that contain sixty to seventy per cent of acidity are not esters at all, and it is hopeless to expect an ester of low acid number when the open kettel is employed. The proportion of glycerin used does not make any difference, for bad results will always be obtained under these conditions. The conversion of glycerin into a rosin ester is a slow one and the temperature of the process is relatively high. Thus when a large amount of glycerin is added, this does not induce the combination of the glycerin with the rosin but merely results in a considerable loss in glycerin due to evaporation. An apparatus must therefore be used to catch these glycerin vapors, condense them and return them to the kettle. In doing this it is necessary to see that the water which is distilled along with the glycerin is not likewise condensed and fed back again to the kettle.

IN small production of esters, the change in the apparatus is very simply made. A cover is placed on the kettle and a condenser is fastened to the cover. The condenser is of such length that the evaporated water is allowed to escape into the air while the higher boiling glycerin is condensed and drops back into the kettle. It is well not to connect the condenser and thereby the kettle with an exhauster for the reason that the suction will always carry a certain amount of glycerin along with the water vapors. After esterification has been completed in this apparatus, the cover and the condenser can then be removed and the process is finished by boiling in the open to remove the residual water and glycerin. Esters which have been prepared in this manner do not react entirely neutral but are nevertheless very much better products than those that are obtained in the opening boiling method.

Considerably better results are however obtained when the process is carried out in autoclaves under pressure. There are of course certain disadvantages connected with the use of this apparatus, for the esterification requires considerably more time when carried out in the autoclave and furthermore when the pressure is relieved for the purpose of removing the water then due to the high temperature the contents of the autoclave foam very strongly and at times they are ejected from the vessel. It must furthermore be mentioned at this point that pressure will cause the esters to be decomposed into their component parts.

Esterification of the rosin in autoclaves is carried out at a temperature of approximately 180 degrees C, about eighty per cent of glycerin being added to the molten rosin. It is advisable to heat the glycerin somewhat be-

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Stearic Acid—A Rubber Compounding Material

The fact that stearic acid is a definite chemical product of uniform quality is causing increasing use of it to replace palm oil and other softeners which vary in quality and therefore do not have the definite chemical effect of stearic acid.

THERE are several commercial grades of stearic acid known as single, double and triple pressed. The single pressed grade is the one commonly used in rubber mixings for its beneficial effects on working qualities and tensile properties. It has a melting point of 126 degrees F. and is marketed in block or ground form. It has for some years been listed as a rubber softener and used more or less for that purpose.

The study of accelerators of vulcanization and the nature and function of the resins and proteins contained in crude rubber revealed to rubber technologists the great value possessed by stearic acids in rubber compounding aside from simple softening effect, important as that function is when required. The more generally used softener in the earlier days of the rubber industry was palm oil which served this purpose well when free from water, dirt, etc., especially in the shoe and mechanical divisions of the industry and when mixed rubbers of variable curing qualities were used, says "The India Rubber World."

Now that more is definitely known concerning the chemistry of rubbers, palm oil and other softeners are being superseded in favor of stearic acid because the latter is pure and of definite chemical effect. This is not the case with palm oil, for example, which varies greatly in consistency and free fatty acid content.

Stearic acid has apparently four effects in a rubber compound. These are, as a dispersion agent and softener, (2) as a stabilizer of crude rubber grades to definite curing rate, (3) as an activator of accelerators, and (4) effective economically.

Stearic acid serves as a dispersing agent in a compound by reducing surface tension of the ingredients, thus permitting them to be more easily wet by the rubber and absorbed by it. In this way the stiffening effect of pigment aggregation is eliminated.

While the list of softeners used in rubber compounding is large, few of them are satisfactory for all around use as is stearic acid. Many which are satisfactory in an uncured compound, unfavorably affect the firmness and toughness of the vulcanized goods,, while certain others are unfavorable to good aging. Stearic acid, however, not only softens uncured rubber mixings, giving smooth running stocks—even those containing large amounts of reclaim—but it introduces no objectionable features into the composition. The cured products are tough, snappy and age well.

High grades of crude rubber contain naturally a proportion of fatty acids. These are necessary for curing effect, and in cases where their presence and amount is more or less uncertain, the addition of stearic acid containing a percentage of oleic acid is desirable to stabilize the cure, especially in the presence of accelerators. Therefore, it is considered good practice to add one-half of a per cent of stearic acid in the rubber simply to stabilize the cure. This applies especially in the case of compounds cured with organic accelerators. Certain accelerators, however, require as high as one to two per cent stearic acid and in special instances two to four per cent is utilized.

Zinc oxide is the commonly used activator for organic accelerators, and for this purpose requires to be made soluble. The presence of a fatty acid, such as stearic, increases the amount of soluble zinc and so aids in the activation of the accelerator.

The ammonia type of accelerators such as hexamethylene-tetra-mine and diphenyl-guanidine; the amines, such as aniline and piperidine, all require soluble zinc as activator, therefore the presence of a zinc dissolving fatty acid like stearic is desirable.

In like manner the group represented by ethylidene aniline and the addition and condensation products of amines and aliphatic aldehydes are also benefited.

With mercapto type of accelerators stearic acid should be used in the proportion of one per cent to the rubber in lightly compounded stocks and three or more per cent. in treads. The reason is that the speed of reaction of these accelerators as well as the physical properties developed depend on the presence of an adequate proportion of free fatty acid. Therefore, Captax, Monex, Thionex or similar acid accelerators require higher proportions of stearic acid than do the guanidines and the accelerators derived from or closely related to the ethylidine anilines.

The presence of stearic acid with the basic accelerators tends somewhat to neutralize them and retard their action slightly. With the acid accelerators that effect does not occur, and full effect is obtained both of the accelerator and the acid.

The effect of stearic acid in compounded stocks is illustrated by the following mixings containing a high proportion of carbon black accelerated with an acid accelerator. Tests made on the stocks of the same cure show remarkable improvement in the tensile properties.

TYPE MIXING, WITH AND WITHOUT STEARIC ACID

Rubber	100.0	100.0
Zinc oxide	5.0	5.0
Carbon black	40.0	40.0
Captax	0.6	0.6
Sulphur	3.0	3.0
Stearic acid	0.0	4.0

TESTS OF MIXINGS, WITH AND WITHOUT STEARIC ACID

	Load at 300%		Tensile at Break		Elongation at Break	
Compound	A	B	A	B	A	B
Press Cure 45 min. at 40 lbs.	700	1,360	2,010	4,430	515	615

Similarly the effect is very marked by adding stearic acid to a tread type stock of the following composition:

Rubber	100.0
Micronex	42.5
Zinc oxide	5.0
Mineral rubber	5.0
Sulphur	3.5
D. O. T. G.	1.0

With the addition of one and two per cent, tensile strength remains unchanged, elongation is slightly but definitely improved, and the modulus at 300 per cent, or in other words, the stiffness, is but slightly reduced. The use of three per cent. introduces real softening effect, though leaving the tensile strength practically unaltered. The five per cent. addition shows as excessive for tread and general mechanical compounding work, since at this point tensile properties fall off, and the vulcanized product is too soft.

The recommendation for a mixing of the above type where guandine accelerators are used favors two per cent of stearic acid on the rubber. In case an acid accelerator is used such as Captax, Monex or Thionex this amount of stearic acid should be increased to four per cent.

The economy of using stearic acid consists in compound cost savings by utilizing cheap rubbers and in economy of time, power and labor. The stearic acid addition stabilizes the rubber and facilitates mixing and cure of the compound. Its composition is definite, which is greatly in its favor.

The foregoing advantages of stearic acid have brought it strongly into current practice, and it is being used for the improvement of stocks of every type. With it very low percentages of zinc oxide aer sufficient, thus reducing specific gravity by excluding unnecessary zinc and favorably influencing volume cost. The best tire treads now contain from two to four per cent of stearic acid on the rubber and the zinc oxide is limited to five per cent.

Sales Agencies vs. Direct Selling

The recent article by a veteran sales manager of one of the leading chemical mannfacturers on "Manufacturers and Distributors" in which the sales manager told why he thought that selling through agencies was not the best way to sell goods, has drawn an interesting reply from a prominent sales agent. For obvious reasons both the writer of the original article and the writer of the answer do not wish their names revealed—Editors.

I have read with interest, an article entitled "Manufacturers and Distributors" on Page 365 of your March 10th issue, and take the liberty of disagreeing in principle with the thoughts of the author. In this article, the author is undoubtedly confusing the business of exclusive district sales agents with brokers.

I agree with him that the broker depends entirely on the buyer, for if he doesn't buy, there is no business, and therefore his leaning would be to favor the ideas of the buyer and bid down the seller in each instance. On the other hand, the exclusive district territory representative handles only the product of one manufacturer, i.e.; while he may represent ten or twelve of these, he will represent only one on ammonium chloride and only one on caustic soda, etc. Furthermore, in selling to the trade, the large majority of whom are consumers, he sells in the name of his principal as an agent and not as a jobber, or dealer, or broker. He is, in fact, a direct factory representative.

In the majority of cases, the invoicing is done by the factory on straight carload shipments or less carload shipments from the plant, and if a stock is held at the distributing point, the district sales agent does the billing on the factory's invoice-heads, when deliveries are made from local stocks. There are a great many manufacturers who do not feel they want to be hardened with a fixed selling expense and therefore they appoint these various agents at distributing centers, who have entry to the consuming trades, and where the manufacturer is liberal and intelligently considerate of the selling agent's position, he will not attempt to drive a hard bargain to force the agent to guarantee on a definite amount of business at a definite price, for if he does, he loses the very principle on which the agency is based, i.e.; trading for his principal instead of with him.

In our business experience, we have found some manufacturers who demand the agent to buy a definite quantity at a definite price, with the understanding, that anything above that price belongs to the agent as his profit. When conditions are generally prosperous, the agent, under an arrangement of this kind, very often can make a handsome profit and unquestionably the principal becomes irritable and wants the contract changed because the agent is making a larger profit than the manufacturer thinks the agent is entitled to. On the other hand, if conditions are quiet and prices are soft, the agent loses money, or makes so little profit that he cannot conscientiously expend the necessary sales effort, both in man power, advertising, etc. to warrant it at a small profit and no profit at all.

I do, however, find that where the manufacturer gives the agent a straight selling commission large enough to warrant the agent taking a fair gamble by spending money for missionary and actual sales work, including traveling, advertising, etc., that the agent will put forth the proper effort, at a cost, far below what the manufacturer would have to spend on his one or two items, since the agent having eight, ten or more lines, can distribute his selling expenses over all the items, and with entry to the trades already established, the cost is not so great.

My experience has shown in a practical way, that agencies appointed on a fair straight commission, have proven satisfactory, and that the only danger to the manufacturer in a policy of this kind, lies in choosing the wrong agent.

[The Industry's Bookshelf]

American Business Law, by John J. Sullivan, Professor of Law, Wharton School of Finance, University of Philadelphia. Cloth bound, 433 pages. Published by D. Appleton & Co., New York.

The fourth edition of a well known work giving the Subject discussed in detail are: fundamentals of law business, formation of contracts, the operation of contracts, agency, partnerships, corporations, personal property, real property, sales and mortgages of personal property, sales and mortgages of real property, suretyship, guaranty, insurance, estates of decedents, intestate law, wills and trust estates.

Physico-Chemical Geology, by R. H. Rastall, Sc. D., F. G. S., Fellow of Christ's College and Lecturer in Economic Geology in University of Cambridge. Cloth bound, 248 pages. Published by Longmans Green & Co., New York.

Described by the author as "An attempt to give in a connected form some application of modern theories of physical chemistry to geological problems.

Catalysis in Theory and Practice by Eric K. Rideal, Owens Lecturer on Physical Chemistry, Cambridge, and Hugh S. Taylor, Professor of Physical Chemistry, Princeton University. Cloth bound, 516 pages. Published by MacMillan & Co., New York.

A second edition of a comprehensive work on catalysis. In this edition the text has been completely revised and several chapters have been added due to the progress in this study since the publication of the first edition in 1918.

Aiding Agriculture Through a Tariff on Organic Chemicals

By William J. Hale

Chairman, Division of Chemistry and Chemical Technology National Research Council

IN the recent, and sometimes bitter, discussions concerning the prosperity of our manufacturing industries as contrasted with financial losses in certain agricultural pursuits, we have noted a tendency by certain critics to align one interest against the other.

Of particular note is the discussion wherein the farmer's troubles are laid at the door of the tariff. How a tariff high on wheat and almost everything the farmer raises and admitting free of duty 96 to 97 per cent. of all he purchases is inimical to the interests of the farmer is beyond comprehension. Another class of critics, are continually crying out against the continuance of a protection that was originally granted only to ward off foreign encroachments during the early stages of development.

Regarded by the farmer as one of a privileged class due to the protective tariff, the chemical manufacturer, who owes his very existence and opportunity for expansion to the tariff, is establishing new industries from products that have their origin upon the farm.

But of all the criticisms that have been heaped upon protection none is more unsound than the assertion that the preparedness argument underlying high protection for chemical plants is uncalled for. Under free trade, it is claimed that our Government could maintain a proper number of chemical plants and hold them always in readiness for the manufacture of war products. The fact is, that it would cost millions of dollars annually to keep the minimum of such plants in fit condition; and then too every five years these plants would have to be scrapped thus necessitating the expenditure of a billion dollars for their restoration.

Chemical processes considered perfect at one time are likely to become obsolete overnight. The process for the manufacture of mustard gas in this country during the War is not the process that would be operative in a war tomorrow. Modern nations can not turn their backs on progress.

In the light of such diverse attacks upon American institutions, it appears fitting that we discuss the actual effect of the tariff upon industry and agriculture.

Under our present tariff, manufacturing industries are operating under increased head and in the main with increased prosperity. There is no reason why this same tariff can not afford the agriculturist proper supports. Both are manufacturers, the farmer of organic chemical products exclusively and the industrialist of both inorganic and organic products but with an ever increasing utilization of the organic and hence catering directly to the agriculturist. All the agriculturist need do is to adapt himself and his operations to industrial practice. He must contract with the industries of his neighborhood for the sale of everything he can produce, and at reasonable prices.

The American market has ever been and is still the great field for sale of products made in this country. Practically ninety-five per cent. of our manufactured articles are consumed at home. Possibly eighty per cent. of all products of both farm and factory constitute the quota for home consumption. It is to protect this domestic market that we need a tariff.

Industrial progress is always assured through the scientific study and utilization of everything at hand. We had been a nation asleep chemically until the War awoke us from slumber. This War was a revelation to every thinking man. The position of chemistry was glorified and our industrial leaders took home the lesson. No nation can succeed without chemical and physical research on the highest plane. It was the dawn of chemical America.

The realization that the development of industrial organic chemistry would make for American prosperity; and that we already had the means and ability to make such strides as would permit a reduction in three years in the rates of duty, established on many itmes, was impressed upon Mr. Fordney and the sponsors of the Act, by their intimate contact with the leading industrialists in this country.

It is due to Nicholas Longworth in the House and to James W. Wadsworth in the Senate that the necessity of including organic chemicals in general was brought to the fore. Longworth and Wadsworth stood out against all objections and refused to consider any compromise.

The manufacture of the basic dye indigo requires the greatest improvements in the manufacture of such compounds as nitrobenzene, aniline, acetic acid, chloracetic acid, sodium, sodamide, caustic soda, and sometimes formaldehyde and sodium cyanide. And again, through these same improved processes rests likewise the more efficient manufacture of thousands of articles of commerce and always at lower prices and of higher quality commensurate of course with such scientific advancement. We need only mention, by way of illustration, that involved with the nine products named above there come before us improvements in the manufacture of synthetic resins, perfumes, flavors, aspirin and medicinals, azo dyes, soap, artificial silk and many others.

But in order to manufacture efficiently each of these

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Recent Rayon Developments

By F. W. Sturtevant

THE principal raw materials for pulp used in the manufacture of rayon are, as is well known, wood and cotton linters. It has recently come to the writer's attention that cornstalks form the basis of a new pulp for rayon. The process is the result of research on the part of a Hungarian chemist, and, far from being a mere flight of fancy, has been the subject of investigation by an American engineering company which reports that the proposition is feasible. Indeed, a group of capitalists have secured American rights to the process, and in all probability actual production will commence in the near future. The cost of processing is said to be low, and the rayon produced is said to be of superior quality.

The problem of weaving rayon, either alone or with other fibers, into extremely fine and closely set fabrics has been before the mill man since the inception of woven rayon goods. Coarse and medium fine yarns have been woven into satisfactory fabrics, and the weaver has steadily eliminated, one after another, the troubles attendant to the handling of this fiber. It might be said here that the troubles were largely the result, not of the rayon, but of the machinery and processes used, which were originally developed for other fibers.

The consumer has constantly demanded finer goods, goods of a more delicate texture, and goods more closely approximating real silk fabrics in fitness. This has meant that rayon for use as warp yarn must be finer in order that the fabric will exhibit an increased covering power while meeting these demands. More is being learned each day about the elasticity and ductility of rayon, so that the production of extremely fine goods is going forward.

Work on the Continent has shown all or part cellulose acetate silk are treated with acetic or formic acid, which have the effect of swelling or "gelling" the acetate fiber so that it is possible to reed rayon as close as 280 ends per inch and obtain good weaving results. The selection of the weave must be made carefully, and fine rayon yarn must be used. New cloths, especially in figured dress-goods fabrics, have been brought out and are known as rayon warp goods. From 150 to 280 ends per inch are common in such fine rayon warp fabrics as the "Facome" cloths. It is said that the fine filament yarns of the cuprammonium stretch-spinning process are very well adapted for the new closely woven fabrics.

We all known that real silk may be treated with solutions of certain salts, particularly those of tin, to increase the weight and give a heavier and more scroopy fabric than would be possible when using pure silk thread. English patent 259,899 was recently issued to cover a process of weighting cellulose acetate silk. Fabrics of this material becomes receptive to solutions of tin or other heavy metal salts. The acid treatment may be carried out either before or in conjunction with the weighing proper. If the two treatments are carried out together, it is only necessary to add acid to the weighing bath.

The material is then washed and may be treated further, after a second gelling with acid, with sodium phosphate and sodium silicate solutions to more permanently fix the weighting in the fiber. The loading process may be repeated in order to increase the weight to any desired point. It is said that cellulose acetate silk, when so treated, exhibits an increased affinity for dyestuffs.

Extensive research into ways and means of producing a regenerated cellulose rayon which would more closely approximate the handle and warm feel of real silk is evident from the repeated attempts to make finer filaments and yarns, with higher breaking strengths. It has been found that rayon having air or gas-filled spaces, in other words hollow rayon, most closely approaches real silk in handle and warmth of feel. This type of fiber is gaining some little favor commercially, and it may be that hollow filaments will before long become commercially important.

"Hollow" may not correctly describe the new fiber, since it has been determined that the space-enclosing filaments retain their cylindrical, hollow-rod-like shape only through the coagulation treatment, and that during desulfurizing, bleaching, and drying, the air or gas is displaced and the filaments collapse to a flat, ribbon-like shape. These filaments are somewhat more elastic than the solid, cylindrical, ordinary rayon filaments, and at the same time are not weaker, either wet or dry, than are the ordinary filaments. In the opinion of many, the hollow filament of ribbon-like structure when mixed with other fibers gives a yarn of greater covering power than does the rod-like rayon filament, and it would seem that a large use for the flat fiber might be found.

It has been found that the production of white or colored discharge printed effects on cellulose acetate fabrics, or cotton, wool, and silk fabrics containing this fiber, is facilitated greatly by a small addition of a sulphocyanide to the usual sodium formaldehyde sulphoxylate reducing paste. A discharge paste described in British patent 262,254 is composed of 15 gms. sodium formaldehyde sulphoxylate dissolved in 70 gms. 3% gum tragacanth, to which 10 gms. 76% calcium sulphocyanide are added. All dischargeable colors are acted upon by this paste, upon aging at 100° C. in a rapid ager for 3 to 5 min., after drying.

Much has been done with viscose solutions in applying a coating to various types of manufactured textile goods, but the use of the other regenerated celluloses has not received so much attention. A recent patent (250,283) issued in England is concerned with the precipitation of cellulose from an ammoniacal copper oxide cellulose solution directly on to textile fabrics, or intermediates in the manufacturing process. Woven, knitted, or felted fabrics, and yarns or warps may all be treated. The goods may have been scoured, bleached, mordanted, or dyed before treatment with the cellulose solution. If desired, it is possible to effect coloring simultaneously with coating, by incorporating a suitable dyestuff in the rayon solution and subsequently precipitating the colored solution on to the fabric or yarn.

New Artificial Silk

Cellulose, hydrocellulose, or mixed esters of cellulose are treated with concentrated formic acid at a temperature not higher than 5° C., and preferably at 0° C. or even lower, to form a new form of fiber, similar in dyeing properties to cellulose acetate silk. A catalyst is essential to absorb the water liberated in the acid treatment; the chlorides of phosphorus are used for this purpose.

The formate solution may be spun directly in an alcohol or salt-solution coagulating bath, or the formic acid may simply be evaporated. The alternative is to isolate the cellulose formate after rendering the catalyst inactive, and then to redissolve the formate, subsequently coagulating it in the alcohol or salt bath. The spun fiber is collected and then treated similar to viscose rayon. The fiber is said to have a high tensile strength both when dry and when wet. The formate

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[News and Markets Section]

Chemical Exports Continue Upward Trend

Imports During April Smaller Than For Last Few Months—Receipts of Varnish Gums Fall Off—Exports of Industrial Chemicals Exceed Imports by $1,000,000—Sulfur Shipments Reduced—Coal Tar Sales Abroad 54 Per Cent Increase Over April, 1926—Fertilizers Exported Increased in Quantity, But Decreased in Value

(*Special to* CHEMICAL MARKETS)

Washington, D. C., June 8—The chemical and allied products trade during April, 1927, continued the upward trend for exports and downward for imports that has been evident the past few months. Exports rose 8 per cent from $14,843,000 in April, 1926, to $16,087,000 in April, 1927, and imports declined 14 per cent from $20,787,000 to $17,919,000. The monetary differences between exports and imports was again reduced, exports being only $1,842,000 less than imports. There were no particularly startling changes in the groups although the fertilizer trade showed marked declines in both directions and coal-tar crudes exported continued to be very large, according to Chemical Division, Department of Commerce.

Nearly all classes in the naval stores category recorded increases in the current April over April, 1926, in both quantities and values, with totals for the month equalling $2,243,400. Of the shipments of 88,950 barrels of rosin worth $1,672,000, Germany took one fourth, England, one seventh, and Brazil, one eighth. Wood rosin accounted for 12,500 barrels $181,100. Germany, Netherlands, England, and Canada, were the largest customers for the 572,900 gallons ($413,000) of gum spirits of turpentine shipped in April 1927.

The falling off in receipts of varnish gums is largely responsible for the 36 per cent decline to $2,244,000 worth in incoming shipments of gums and resins which important group comprised one eighth of the total chemical imports. The 1,070,000 (5,777,000) pounds) in varnish gums imported in April 1927, represented declines of one third in values and one fourth in quantities. Shellac fell from $938,300 (2,341,000 pounds) in April, 1926, to $526,600 (1,361,000 pounds) in April 1927.

Only half as much camphor of all kinds was imported the current April as in April, 1926, with the $114,000 (243,000 pounds) of synthetic camphor equalling 45 per cent of all camphor imported.

After the big reductions in imports of Chinawood oil during the past few months imports were again up to $1,314,000 (11,000,000 pounds) in April.

For another month, exports of $3,183,000 worth of industrial chemicals exceeded the imports ($2,011,000) by over $1,000,000. In the outward movement the increases in shipments were confined almost entirely to disinfectants, insecticides and fungicides, and sodas. In the inward movement, nearly all commodities of the general line were less while the gains in some of the potassium compounds tended to offset these declines so that the total imports of industrial chemicals fell but one per cent.

Sulfur shipments were somewhat reduced during the month under discussion. France's and Germany's purchases mounted while those of Canada were off considerably.

Exports of $12,276,000 worth of commodities included under chemicals and allied products, exceeded the imports this month and surpassed those of April, 1926, by 4 per cent. Of the subgroups under this heading, fertilizers dropped in values in both exports and imports.

Due to the large shipments of crudes, exports of $2,098,000 worth of all coal-tar products were 54 per cent above April, 1926, and only $212,000 below the imports ($2,310,000 worth). Large foreign shipments of benzol (3,387,000 gallons), and of crude coal-tar and coal-tar pitch, (112,200 barrels) were made in April. The import price of creosote oil was considerably more than last April as indicated by the figures when quantities declined from 10,025,000 gallons in April, 1926, to 7,893,000 gallons in April, 1927, while values rose from $1,299,000 to $1,302,000.

Exports of colors, dyes, and stains, amounting to $375,700 (1,226,500 pounds) were less, and imports $817,000 (766,000 pounds) were more than double those of April, 1926. A considerable part of these imports, however, went into bonded warehouses.

Disinfectants, insecticides, fungicides, and similar preparations amounted to 2,022,300 pounds, valued at $546,200 in April, 1927. Sodium compounds dropped from 31,085,000 pounds, valued at $757,900 in April, 1926, to 32,343,600 pounds, $837,900 in April, 1927. Sodium chromate, borax, soda ash, sal soda, and all other sodium compounds showed increases while caustic soda showed rather large decreases. The most noticeable changes in the imports were appreciable reductions in crude glycerin and iodine. Both these commodities have been coming in large amounts during the past year or more. Purchases from foreign countries of potassium carbonate, potassium hydroxide potassium chlorate, and sodium cyanide were all larger.

Exports of pigments, paints, and varnishes amounting to $1,812,000 in April 1927, were 6 per cent more than in April, 1926. Carbon black exports of $430,200 (4,895,500 pounds) were a little higher than usual and many of the other commodities of the group with the exception of enamel paints, recorded slight increases over April 1926. Imports of this group changed little, and amounted to $360,000 for the month.

Exports of fertilizers and fertilizer materials increased in quantities from 111,000 tons to 129,000 tons, but decreased in values from $2,007,000 to $1,515,000, while imports declined in both quantity and value to 150,800 tons valued at $5,486,800. After the large amounts of ammonium sulphate which have been sent to foreign countries, largely to the Far East, shipments were down somewhat to $422,000 (7,800 tons) but superphosphates were above the monthly average and equalled $150,000 (10,800 tons). As has been true the past few months, the decreased consumption of sodium nitrate was largely responsible for the decline of one third in imports of fertilizers and materials. Receipts of $135,200 (6,900 tons) of calcium nitrate were unusually high while those of chloride of potash and kainite were quite small.

Dynamite, accounting for nearly two-thirds the entire shipments of

$323,000 worth of explosives, gained while the other items of the group were about average.

HOWARD AGAIN HEADS MFG. CHEMISTS ASSN.

Manufacturing Chemists Association of the United States elected the following officers at the annual meeting: President: Henry Howard, Grasselli Chemical Co.; Vice-President: W. D. Huntington, Davison Chemical Co.,; Vice-President: H. A. Galt, Columbia Chemical Division, Pittsburg Plate Glass Co.; Treasurer: Philip Schleussner, Roessler & Hasslacher Chemical Co.; Secretary: John I. Tierney, 614 Investment Bldg., Wash.

Executive Committee: S. W. Wilder, Merrimac Chemical Co.; Chas. L. Reese, E. I. duPont de Nemours & Co.; Wm. H. Bower, Henry Bower Chem. Mfg. Co.; C. W.Millard, General Chem. Co.; H. F. Atherton, National Aniline & Chem. Co.; H. L. Derby, The Kalbfleisch Corporation: Geo. W. Merck, Merck & Co.

Carboy: M. F. Crass, Grasselli Chemical Co.; G. W. Kaestner, General Chemical Co.; J. M. Rowland, Hooker Electrochemical Co.; T. P. Callahan, Merrimac Chemical Co.; Guy E. Carleton, Bureau of Explosives; C. P. Beistle, Bureau of Explosives.

Standardization of Laboratory Apparatus: J. W. Stillman, E. I. duPont deNemours & Co.; C. Clifton Howes, Davison Chemical Co.; L. C. Drefahl, Grasselli Chemical Co.

Tank Car: George E. Tiley, General Chem. Co.; M. F. Crass, Grasselli Chemical Co.; J. M. Rowland, Hooker Electrochemical Co.; J. C. Maguire, E. I. duPont deNemours & Co.; H. M. Mabey, Mathieson Alkali Works; T. P. Callahan, Merrimac Chemical Co.; H. W. MacArthur, U. S. Industrial Alcohol Co.; E. W. Cooper, Bureau of Explosives.

Traffic: John I. Tierney, 614 Investment Bldg., Washington, D. C., Frank G. Moore, Davison Chemical Co.; H. J. Taggart, E. I. du Pont deNemours & Co.; O. C. Jones, Grasselli Chemical Co.; J. D. Ross, General Chemical Co.; Edw. Ostrom, Hooker Electrochemical Co.; Thos. O'Donnell, Mallinckrodt Chemical Works; H. M. Mabey, Mathieson Alkali Works, Inc., H. L. Crowder, Penna. Salt Mfg. Co.; J. Valentine Mueller, Roessler & Hasslacher Chemical Co.; H. W. MacArthur, U. S. Industrial Alcohol Co.; N. D. Chapin, The Solvay Process Co.

Transportation of Poisonous Articles and Miscellaneous Packages: M. F. Crass, Grasselli Chemical Co.; C. B. Dickey, Corona Chemical Division, Pittsburg Plate Glass Co.; G. W. Kaestner, General Chemical Co.; Thos. O'Donnell, Mallinckrodt Chemical Works; H. A. Adams, Powers-Weightman-Rosengarten Co., C. P. Beistle, Bureau of Explosives.

Steel Drums: (Specifications for) C. M. Turner, E. I. duPont de Nemours & Co., G. W. Kaestner, General Chemical Co., T. P. Callahan, Merrimac Chemical Co; M. F. Crass, Grasselli Chemical Co., Guy E. Carleton, Bureau of Explosives; Geo. A. Moore, Detroit Range Boiler & Steel Barrel Co.

Committee on Hazardous Chemicals and Explosives: Chas. L. Reese, E. I duPont deNemours & Co.; A. G. Rosengarten, Power-Weightman-Rosengarten Co.; C. P. Beistle, Bureau of Explosives.

OIL CHEMISTS ELECT

American Oil Chemists Association in session at Memphis, Tenn., elected H. P. Trevithick, New York, president; A W. Putland, vice-president; J. C. P. Helm, secretary-treasurer. Herman Aspegren, Portsmouth, Pa., read a paper on "What is Refined Oil", in which he said:

On the exchanges of this country where refined cottonseed oils are traded in and among vegetable oil chemists and trades I believe by "refined oil" is generally meant an oil which has been alkali refined and filtered. The advancement of science has made it possible to further treat, or I might say, further refine or process cottonseed oil and thereby produce oils more suitable for many purposes than the oil which has only been alkali refined. However the trade rules as adopted by the New York Produce Exchange, Interstate Cottonseed Crushers' Association and New Orleans Cotton Exchange evidently still refer principally to cottonseed oil not further treated, and in fact, the New Orleans Cotton Exchange specially prohibits the tendering of deodorized refined cottonseed oil."

April production index number for chemicals was 184 compared with 190 for March and 166 for April of last year taking 1919 at 100 per cent according to the Department of Commerce.

MEMBERS OF S. O. C. M. A. ENJOY BELLPORT OUTING

The golf tournament was the chief event on the program of the annual outing of the Synthetic Organic Chemical Manufacturers Association which was attended by over fifty members. The place of the meeting was the Wyandotte Hotel on the south shore of Long Island at Bellport, and the dates were June 2 to 4.

Practically the full attendance arrived on Thursday and C. A. Mace, secretary of the organization called together a meeting. A cable message was read on the findings of the International Economic Conference at Geneva on the German proposal that barriers to international trade in chemicals should be removed. The message read to the effect that the conference held "that any national or international industrial agreement may or may not be successful, also that international control is not practicable. This was the only business transacted during the outing.

The golf tournament started on Friday morning. Ralph E. Dorland, Dow Chemical Co., won first prize with a net score of 69, and received a golf bag. F. M. Fargo Jr., Calco Chemical Co., won second prize with a net score of 73, and rececived a "zipper" duffle bag. The "kickers" handicap was won by S. C. Moody, Calco Chemical Co., with a net score of 76.

The tennis tournament was won by L. A. Ward, Hooker Electrochemical Co., who received a dozen tennis balls for first prize. The sports were under direction of F. P. Summers, Noil Color & Chemical Co., treasurer of the organization. He was assisted by C. A. Mace, secretary of the association.

Belle Fourche Bentonite Co., which has purchased an 800-acre field outright and taken 154 mining claims of 20 acres each upon land west of Belle Fourche, S. D., has leased a large section of its holding to M. E. Hafner of Newell who will install a dryer and begin active production of the material, which has been tested for availability in toilet preparations, face powder, making soap, de-inking and manufacturing papers and is developing several other uses. Manufacturers have objected to the moisture content of the original material and the waste in paying freight upon water. The dryer on the field will solve this difficulty and Hafner expects to take out 300,000 tons of bentonite from his holdings.

New Salesman In Fertilizer Field

President of National Fertilizer Association Tells Convention That Agricultural Colleges Are Furnishing Best Men Because of Their Training—Practice In Agriculture in England Described by Sir John Russell—Virgil Jordan Says Agricultural Problem Is Most Vital to the Nation

(*Special to* CHEMICAL MARKETS)

White Sulphur Springs, W. Va., June 8—The National Fertilizer Association opened its annual meeting on Monday. Charles J. Brand, executive secretary and treasurer of the association, said at the first day's session. "There is no danger of famine, and the world needs never to fear going hungry, because adversity of weather can be minimized by the use of commercial plant food, and its use will increase production of cheaper food whenever the demand arises. Executives of fertilizer manufacturing companies are here from thirty states, and a score of the world's leading soil scientists from England, Germany, France, Italy, Russia and other countries are in attendance, having come over to attend First International Congress of Soil Science which convenes in Washington June 13 to 22 and to which they are official delegates.

Continued spreading of good roads into the rural districts and the greater use of trucks by farmers is having a distinct influence on the farmer's buying habits, particularly of fertilizer, declared Spencer L. Carter, of Richmond, Va., in his presidential address on Tuesday.

The effect of this new buying habit is forcing the fertilizer industry and other industries doing business with the farmer to adopt new methods of merchandising, Mr. Carter pointed out. About 70 per cent of the total tonnage of fertilizer sold in a year is bought by farmers during six months in the spring which places a severe strain on the industry during that high-peak period. He also emphasized that a small number of high-type salesmen is a valuable advantage over a large number of mediocre salesmen. Agricultural colleges are furnishing men of good quality and training for fertilizer salesmen, and the industry is hiring these men in preference to all others, he declared.

"The practice of a salesman visiting a customer often twice a week during the selling and shipping season, simply because the other competitor's salesman does it, is uneconomic and wasteful. This is unnecessary and all wrong; his presence is not needed that often by the buyer, and he is not rendering a service by such visits. Often he is simply tracking and watching competitor's salesmen."

Sir John Russell, director of the world's oldest seat of scientific agricultural reseach — Rothamsted Experimental Station, Harpenden, England, said experiments in which fertilizers have been used to maintain and increase yields of crops at Rothamsted for 85 years have produced data upon which the English agricultural experimentalists are compiling tables of expectancy of crop yield similar to the well-known tables of expectancy of life, upon which the life insurance business is based. Barnyard manure is a good fertilizer in all kinds of seasons, he said, but a proper combination of artificial fertilizers and manure has given "the best and steadiest results on our plots."

"The phosphates act well in cold wet seasons," he said, "the potassic fertilizers help in the dry hot seasons, barnyard manure is good in dry cold or dry hot seasons, but nitrogenous fertilizers are good nearly always. The fertilizer thus acts as a buffer between the crop and the season, making for constancy of yield. Such steadiness of yield is obviously in the farmer's best interest."

Virgil Jordan, chief economist of the National Industrial Conference Board, New York, which has been and still is gravely concerned over the seriousness of the agricultural situation in this country said in part:

"Though the city workers and the city industries are profiting today by the cheap food they get at the farmers' expense, all economic experience shows that they cannot evade paying their board bill, though it may take another decade for the farmer to collect it."

"In the long run," he said, "the farm and the factory are mutually dependent and there can be no permanent prosperity by one, at the expense of the other. From the point of view of the national economic welfare, we need the maximum production, which is to the national advantage and to the advantage of the individual producer, from injuring the relative economic position of either the agricultural or industrial group as a whole. During the past few months the agricultural problem — the most vital question facing the American nation — has again been turned adrift and left to the casual attention of vacillating political groups and the ineffectual clamor of a few prophets in the wilderness.

"The time has come in the life of the American people, as it has come before in the history of all great nations, when we must deliberately and wisely formulate a national agricultural policy. We must make up our minds as a people whether we are going to continue to sacrifice our agricultural development to our temporary industrial growth, as we have been doing, or whether we are going to adopt the safer and wiser course of bringing our agricultural, industrial and commercial life into a well balanced and cooperative relationship."

CHARLES L. READ LEAVES SEABOARD

Charles L. Read has resigned as treasurer and general manager of Seaboard Chemical Co., effective immediately. Mr. Read's health has not been of the best for some time past and he has been anxious to be relieved of his duties as general manager.

Mr. Read first tendered his resignation about six months ago but was asked by the Board of Directors to stay a few months longer. He leaves Seaboard's business in excellent condition, particularly in its latest venture, into the industrial alcohol field.

Mr. Read was the organizer of the Seaboard Chemical Co., in 1915, and has been general manager ever since. He will remain as a director of the Company in which he has a substantial stock interest. Other than taking several months rest, Mr. Read has not announced his further plans.

Ethylene glycol is admitted into Canada free of duty, when for use in Canadian manufacturers, until the end of the next session of Parliament. Cellulose acetate, in powdered form, is entitled to a drawback of 99 per cent of the duty, when imported between Nov. 1, 1927, and April 30, 1928, by Canadian manufacturers for further manufacture before June 1, 1927.

NITRATE SHIPMENTS

Nitrate of soda production in Chile during the first quarter of 1927 was 244,282 tons compared with 682,919 tons during the corresponding quarter of 1926. Shipments from Chile during the same period are listed below for each country:

	1927 1st quarter metric tons	1926 1st quarter metric tons
Germany	2,032	—
Argentina	778	—
Colombia	214	—
Cuba	2,133	—
Canada	1,016	5,182
Ecuador	2	—
Egypt	8,055	44,287
Spain	20,523	20,588
United States	390,776	850,736
Hawaii	27,695	47,521
Italy	3,962	—
France	—	508
Japan	22,758	36,576
Countries of the Mediterranean	—	22,352
Peru	1,943	558
Great Britain (direct port)	18,711	11,176
Great Britain (for orders)	430,264	294,748
South Africa	16,764	25,146
Venezuela	—	2
Total	947,676	1,339,380

CANADIAN METHANOL

Output of wood distillates in Canada in 1926 amounted in value to $1,734,993, a decline of 13 per cent from 1925 and the lowest output value on record for this industry. Exports of methanol during 1926 showed a decline to 37,196 gallons as compared with 153,419 gallons in 1925 and 155,335 in 1924 according to the Dominion Bureau of Statistics.

The affect of the German synthetic methanol has been serious to Canada's export trade not alone in methanol but to all products of the wood distillation industry, the value of which shows a decline from $1,989,996.00 in 1925 to $1,734,993.00 in 1926.

Imports of urea entered for consumption in the United States during the first quarter of 1927 show a marked increase. The total receipts for the quarter were 230,986 pounds double the quantity entered during the parallel period of 1926. A six-year record of United States imports follows:

Year	Quantity Pounds
1921	35,339
1922	260,636
1923	45,711
1924	94,307
1925	146,438
1926	377,729

Ten million tons of almost pure borax have been discovered 30 miles east of Mojave, near Rich station. The deposits are controlled by Pacific Coast Borax Co.

U. S. TALC OUTPUT

Talc sold by producers in the United States in 1926 amounted to 181,568 short tons, valued at $2,110,994. The figures comprise 5,988 tons of crude talc, valued at $26,723, 1,528 tons of sawed and manufactured talc, valued at $130,253, and 174,052 tons of ground talc, valued at $1,954,018. The total quantity was slightly less than in 1925, but the total value increased 5 per cent. There were 21 producers of talc in 1926, two less than in 1925. Of the total quantity sold, New York supplied 83,231 tons, valued at $1,030,075, compared with 85,109 tons, valued at $993,913, in 1925.

Imports of talc for consumption in 1926 were 23,846 short tons, valued at $540,082. Corresponding figures for 1925 were 20,993 tons, valued at $450,532.

FULLER'S EARTH OUTPUT

Fuller's earth sold or used by producers in the United States in 1926 amounted to 234,152 short tons, valued at $3,356,482, it is announced by the United States Bureau of Mines, which has collected statistics in co-operation with the Geological Surveys of Florida, Georgia, Illinois, and Texas. This is an increase of 13 per cent in quantity and 15 per cent in value compared with 1925. Every important producing State except Texas showed an increase.

Georgia was the leading State in production in 1926, with Florida second and Illinois third. The average value per ton of fuller's earth was $14.33 in 1926 compared with $14.15 in 1925.

Exports of fuller's earth are not separately shown by the Bureau of Foreign and Domestic Commerce, but five producers reported that in 1926 they exported 6,650 short tons of fuller's earth, which was a slight increase over 1925.

William A. Disque, attorney-examiner, Interstate Commerce Commission, has prepared a proposed report for the Commission in which he finds, upon rehearing, that the rates on sulfuric acid, in tank carloads, from Evansville Ind., and Louisville, Ky., to Lawrenceville, Ill., are not unreasonable or unduly prejudicial. The complaint, which was instituted by Southern Agricultural Chemical Corp. against Cleveland, Cincinnati, Chicago & St. Louis Railway Co. has been dismissed.

BRITISH CHEMICALS QUIET

(*Special to* CHEMICAL MARKETS)

London, May 26—Demand for chemicals continues slow and no real improvement is noticeable. Heavy chemicals are a little more active. More business is doing in caustic soda.. Bleaching powder is in steady demand and in alkali a satisfactory consumptive demand exists. Salt cake without change in price has attracted more attention. Sodium sulfide continues dull. Magnesium chloride is quoted about £7 per ton—ex works. Calcium chloride is without change in value, but inquiries are good. Copper sulfate is firmer and in steady demand at about £25 per ton for home brands.

There is more demand for arsenic white powder which is still quoted at £16.10s per ton ex Cornish Works. Potash Carb is selling moderately at £27.10s per ton for 96/98 per cent. Potash caustic, is quiet at unchanged rates. Soda nitrite is selling more freely at former figure of about £19 per ton.

Prussiates are slow at unchanged prices. Chlorates are quiet with potash at £27.10s per ton and soda $26. Aniline oil and salt have a ready sale. Nitrate of soda, spot, is quoted £12.15s, but much lower figures are quoted for delivery after June. Tartaric and Citric Acids unchanged.

Allied paint interests of Philadelphia, under the auspices of Philadelphia Paint, Oil and Varnish Club, Save the Surface Dealers' Association, Save the Surface Salesmen's Club, Chemical Club, with the members of Master Painters' Association, and Mixers' Club of Philadelphia held their annual outing June 8 at Alcyon Park, Pitman, N. J. Lunch and dinner were served and various games played. The main feature of the day was a baseball game between paint dealers, headed by Ed Rinck, president Paint Dealers Association and the Chemical Club of Philadelphia, headed by L. S. Lloyd of Alex. C. Fergusson, Jr.

Agricultural Insecticide and Fungicide Manufacturers Association meets June 15 at the Hotel Commodore, New York for election of officers. Preceding the association meeting the executive committee will hold a secret session.

ALSATIAN POTASH FIRM PROGRESSES

The "Societe Alsacienne et Lorraine de Recherches Minieres", of Nancy, France, capitalized at 3½ million francs was formed late in 1925 for the purpose of exploiting a potash mining concession at Blodelsheim not far to the east of the present Alsatian potash mines. The annual report of this company for 1926 indicates that progress is being made in developing the concession, borings having been effected in two places, one in the center of the concession, the other about 2,000 feet to the north of the limits of the concession and outside thereof. The first boring disclosed potash of a thickness comparable to previous borings. The boring outside of the concession also showed satisfactory results. It is stated by officials of the company that the results obtained by these borings have confirmed their opinion of the exploitability of the bed and it has been decided to proceed with the sinking of the shafts. At present there are being executed two new borings in the southern part of the concession which will permit the company to choose the placing of the shafts in a manner most favorable to the exploitation which it has been decided to pursue in this region. Without awaiting a definite decision which will permit the fixing of the actual seat of the extraction of potash, the company is pushing actively the preparatory work and it is believed that the sinking of the shafts will commence during the present Summer, and that electric systems and railroad lines will be constructed.

Synthetic calcium nitrate, or nitrate of lime, imports into this country are increasing. Formerly, Norway supplies the bulk of the imports, at present eGrmany is an important factor in the trade. Receipts during the first quarter of 1927 were 8,238 long tons, or 50 per cent more than in the first quarter of 1926. Imports during 1923 (entire year) were 10,283 tons, 1924; 7,682 tons; 1925 7,777 tons; and 1926, 13,457 tons.

Dutch production of benzol has been tripled since 1922 and is almost exclusively confined to one interest, the Staatsmijnen (Government coal mines) in Limburg at Heerlen, near the German border. Annual production of this firm amounts to 6,000 tons which is almost entirely exported.

Heavy Cotton Oil Carryover Predicted

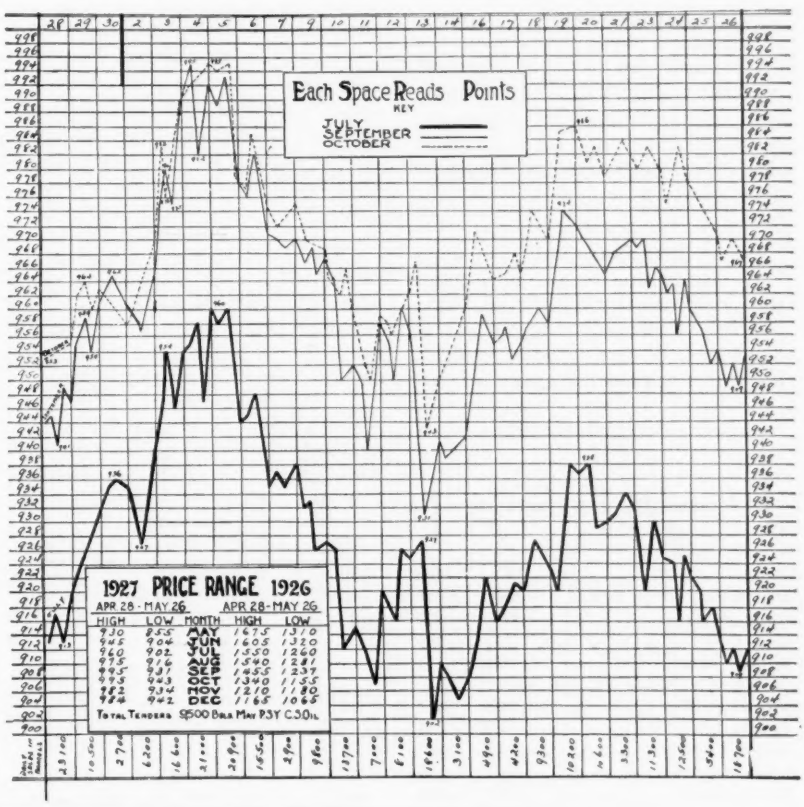
The following market letter and chart by W. A. Storts of Edward Flash Co. are a resume of the Cottonseed oil position for May.

May 26, 1927

The Census report, covering April cottonseed statistics, released May 13th, again surprised everyone by showing consumption of refined oil 205,785 bbls. Seed receipts were also heavier than generally expected, bringing total this season to April 30th over 6,200,000 tons, out of which there have already been crushed 5,910,000 tons. The visible supply, May 1st, seed, crude and refined, equalled 1,814,000 bbls. refined oil and is by far the heaviest on record for that date, and, with probabilities of some further Seed receipts, indicates more than ample supplies for the remainder of this season, with an unusually heavy carryover August 1st.

The Mississippi flood and unfavorable crop reports have sustained the market recently. With more favorable crop reports and bettering of flood situation, both are likely to prove depressing factors in cotton oil. The flood, while a great catastrophe, is not likely to cause unusual disturbance to either industry or agriculture, and, as a whole, will probably be no greater than temporary decline in buying power from local sections of the country.

Under normal developments and crop conditions, as we go through the Summer, there will be an unusual pressure on September and October crude and refined oil, especially the latter, and, while fluctuations both ways are logical, from present outlook sustained advance seems very unlikely, although, pending new developments, as cotton oil is reasonable at present prices, there may not be much decline immediately.



James Rossman, sales manager and assistant to vice-president W. D. Huntington, Davison Chemical Co., will take charge of the Baltimore office of Bradley & Baker, fertilizer brokers, with headquarters in New York.

Virgil D. Smith and his son, C. Park Smith, Lousivillie, Ky., have sold their interests in Louisville Paint Manufacturing Co. and Vulcan Varnish Co. The new president is W. S. Helm. The Smiths are moving to California.

[The Industry's Finances]

ESSEX ANILINE REPORTS FOR 1926

Congoleum-Nairn Elects New Directors—Union Bleaching to Retire Bonds—Allied Chemical Declares Dividend

Essex Aniline Works, Inc., Boston, for the year ended Dec. 31, 1926, reports: Assets: Real estate, $32,385; machinery, $28,943; furniture, fixtures and tools, $2,000; autos, trucks and teams, $194; accounts receivable, $2,207; cash, $360; securities, $600; profit and loss, $198,311; total, $265,000. Liabilities: Common stock, $85,175; mortgages, $27,750; accounts payable, $17,075; notes payable, $135,000; total, $265,,000.

Five new directors were elected to the board of Congoleum-Nairn, Inc., at annual stockholders' meeting. The new members are W. F. Hoffman, B. G. Steinetz, Elliott J. Farrell, Douglas W. Vanderbilt and Alvah E. Davison, Jr., all of New York. They succeed G. K. Keddoe, L. W. Fogg, P. D. Richards, Robert Campbell and Frank B. Foster. Mr. Foster was formerly president. Other directors were reelected.

Union Bleaching and Finishing Co., Greenville, S. C., will retire the preferred stock issue of $400,000 July 1, according to announcement of J. W. Arrington, president, following a recent meeting of the board of directors. Dividends totaling $32,000 were declared, payable July 1—4 per cent on the preferred issue of $400,000, and 2 per cent on the common stock of $800,000.

Lantaro Nitrate Ltd., London, announces net profit for 1926 of only £75,800, compared with £1,048,500 in 1925. Considering that the capital of this company is £6,500,000, the profit in 1926 would seem to be small. The reduced profits are stated to have been due both to reduced output and to lower selling prices. Tarapaca and Tocopilla Nitrate Co. (Ltd.) reports net profit under £4,000 for 1926. compared with £38,834 for 1925.

Certain-teed Products has declared quarterly dividends of $1. on common, $1.75 on first preferred and $1.57 on second preferred. All payable July 1 to holders of record June 15.

Fleishmann Co., of California has purchased a two story building at Eleventh and Kissling sts., San Francisco, and will use the premises as headquarters and warehouse for the San Francisco branch.

Fleischmann Co., has declared a quarterly dividend of 75 cents on stock of record June 13, payable July 1.

Virginia-Carolina Chemical Corp. has filed judgment in New York County for $489.57 against Samuel and Jacob M. Shapiro.

Allied Chemical & Dye Corp. has declared a dividend of 1 3/4 per cent on the preferred stock, payable July 1 to holders of record June 10.

National Dye Works, Greenville, N. C., will build a plant at Burlington, N. C., 50 x 60 feet, with addition 100 x 120 feet, four stories.

Prospect Dye Works, Inc., 694 Coney Island ave., Brooklyn, damaged by fire June 2, was insured for $8,000.

[Foreign Exchange]

	Par	Current
Great Britain (pound sterling)	4.866	4.853
France (franc)	.193	.039
Italy (lira)	.193	.055
Belgium (franc)	.198	.139
Czechoslovakia (crown) per 100.	20.30	2.96
Denmark (krone)	.268	.267
Germany (mark)	.238	.237
Holland (florin)	.402	.400
Poland (z'oty)	.193	.120
Norway (krone)	.258	.260
Spain (peseta)	.193	.175
Sweden (krone)	.268	.268
Switzerland (franc)	.193	.192
Argentina (peso)	.414	.423
Brazil (milreis)	.324	.118
Japan (yen)	.499	.462
India (rupee)	.485	.363
China (Silver dollar, Hongkong)	.789	.494
(Tael—Peking, silver)	1.146	.665
(Tael—Shanghai, silver)	1.986	.639

INTERNATIONAL MATCH

International Match Corp. and constituent companies report for the year ended Dec. 31, 1926, consolidated net income $14,586,272 after expenses, taxes and depreciation, equal to $6.21 a share on the combined 1,350,000 participating preference shares ($35 par) and the 1,000,990 no par common shares outstanding. This compares with $10,696,603, or $5.63 a share on the combined 900,000 participating preferred and 1,000,990 common shares outstanding in the preceding year. After $2.60 a share has been paid annually on the participating preferred and common, both then share equally in any further distribution.

Montreal Coke and Manufacturing Co., will erect a coke and gas plant at Ville LaSalle, near the city of Montreal. It will include a battery of combination coke ovens and a by-product plant for the recovery of tar and ammonium sulfate, together with the necessary auxiliary equipment. The plant will have an annual capacity of about 350,000 tons of coke, 3,500,000 gallons of tar and 10,000,000 pounds of ammonium sulfate. It is expected that it will be ready for operation about July 1, 1928. The company has also acquired the gas manufacturing plant of Montreal Light, Heat & Power Co., at Ville LaSalle, a subsidiary of Montreal, Light, Heat & Power Consolidated.

Eustis and Albert mines, two old and well known mines at Capelton, Province of Quebec, have been combined under the name Consolidated Copper & Sulphur Co.

Directors of the new company will be C. W. Nichols, Julian B. Beaty, O. C. Frohnknecht, A. W. Eustis and F. A. Eustis. Operations will be enlarged and extended to the Albert ground. Copper concentrates will be produced as well as a high-grade surplus concentrate for use in manufacture of sulfuric acid.

Gov. C. C. Young, of California, has signed Assembly Bill 1259 permitting country general stores to sell Epsom salts for livestock and farm use.

Gaston County Dyeing Co., Stanley, N. C., will install machinery in June.

[Stocks & Bonds]

	1926 High	1926 Low	1927 High	1927 Low	Current Bid	Current Asked	Ann. Div.
*Air Reduction	146¾	107½	169⅞	134½	160¾	162	6
*Allied Chem.	148⅞	106	147¼	131	142	142½	6
*Allied Chem. pfd.	122¾	118¾	123	120	122½	...	7
Am. Ag. Chem.	34⅜	9	14¾	8⅛	9¾	10	
*Am. Ag. Chem. pfd.	96½	35⅝	51¾	28¼	32½	33¼	
*Am. Can.	63½	38⅞	52½	43⅝	50¼	50⅜	2
*Am. Can. pfd.	130⅛	121	132¼	126	132	132¾	7
*Am. Cyan. "A"	46		98	92	88	91	5.98
*Am. Cyan. "B"	47	35¼	35	32	26	27	
*Am. Linseed	52⅞	25⅝	30½	20¼	24½	25	
*Am. Linseed pfd.	87	68¾	71⅛	46⅜	61	64	7
*Am. Metals	57⅜	42¼	44	40⅞	41	41⅞	3
*Am. Metals pfd.	120	113½	112	107	108	110	7
Am. Rayon Prod.	35¾	29¾	9¼	3½	5¾	5⅞	
*Am. Smelting	152	109⅝	167⅛	132⅝	160¾	160⅞	8
*Am. Smelting pfd.	122⅜	112⅞	126⅞	119¼	124½	125	7
*Am. Zinc	12⅜	5½	10¼	7½	8	8½	
*Am. Zinc pfd.	54½	20	51¼	51¼	45½	46	
Anglo Chil. Nitrate	101	97½	100⅛	95¼	95½	...	
*Archer-Dan-Mid.	34⅞	36	42	38	41	42	3
*Archer-Dan-Mid. pfd.	108	100	108	106	107	108	7
*Armour Del pfd.	97⅞	90¼	96⅛	86	89	92	7
*Atlas Powder	64	54	65	56½	63½	64¼	4
*Atlas Powder pfd.	97⅞	96	105	98	103¼	103½	6
*Brookln Un Gas	98	68	115	89⅞	111½	112	5%
*By-Products Co.	93	53	92½	66	86½	88	2
*By Products Co. pfd.	...	...	115	105	110	115	9
*Calla L & Z	2⅝	1½	2⅝	1¼	1½	1¾	2
Canad. Ind.	20	16¼	27	14	26	26⅝	
Canad. Salt	145	131	115	105	105	115	1
Casein Co.	...	...	176	149	167	172	6
Celluloid Corp.	26	16	33	16	29	31	
Celluloid Corp. pfd.	8	55	84	63	83	87	
*Certainteed Prod.	49½	36⅛	55¾	42	53¼	53¾	4
Charcoal Iron	33½	24	20	8	10	20	
Chesebro Mfg. Co.	78	65	105	73	103	103¼	
Clark Co. Fred	5	2¾	4	2	2½	4	
Cleve Cliff Iron	75	69½	75	69	70	75	
*Columb Carbon	70¾	55⅝	85½	66⅞	75	78	4
*Com. Sol. B	237	118¾	383	223	370	371	8
*Cont. Can	92½	70	73½	58¾	66¾	67	5
*Cont. Can pfd.	126	117½	127	120	123½	126	7
*Corn Prod.	51⅝	35⅝	63⅛	46⅞	53¾	54	2¾
*Corn Prod Pfd.	130¼	122½	132¼	128	132	132½	7
*Davison Chem.	46¾	27½	34½	26½	29⅞	30	
*Davison Chem., Pfd.	...	...	43½	43	43½	43½	7
*Devoe & Rayn A	104⅛	31	42¾	37¾	37⅝	38	2.40
*Devoe & Rayn B	105	40	107	103	102½	104	
*DuPont deb.	110¼	100¾	112	105½	111⅛	111⅞	6
*DuPont de Nem.	181½	157	253⅞	168	242	242½	9½%
*Eastman Kodak	136¾	106⅝	150¼	126¼	147	148	8
*Freeport Texas	36	19⅝	74¾	34	66¼	66½	4%
*Gen. Asphalt	94¼	50	96¾	72½	75¼	76½	
*Gen. Asphalt pfd.	130	94⅞	144⅞	113	116¼	120	5
*Glidden	25¾	15⅜	22	18½	17	17⅛	2
*Gold Dust	56½	41½	59⅜	42	56½	56¾	
Grasselli	145	120	130	125	125	130	8
Grasselli, pfd.	103½	102	103	100	101	103	6
Hercules Powd. pfd.	115	110	119	115	117	118½	7
*Household Prod.	48⅜	40	53⅜	48¼	51¾	62½	3½
Industrial Rayon	19⅞	10½	8½	4¼	6¾	7	
*Int Agr.	26¼	9⅛	10⅜	6⅛	6¾	7	
*Intl. Agr. pfd.	95	57	65	33	34¼	35	
*Intl. Nickel	46¼	32⅜	75	38	69¾	70	2
Intl. Salt	84⅛	61½	72	65	69	70	6
MacAnd & Forbes	46¼	40	43½	40	42	43	
*Mathieson Alk.	106¼	62½	109⅝	82	102½	104	4
*Mathieson Alk. pfd.	105	100	116	103	109½	116	7
Merck & Co.	...	...	86	65	81	83	4
Merrimac	83	72	80	73	75	80	10
*Natl. Dist.	34	12½	46¼	17	45¾	46	
*Natl. Dist. pfd.	73½	37	52½	43½	59	60½	
*Natl. Lead	181	138	200	160	194	195	10½
*Natl. Lead pfd.	120	116	135	117¼	132	133	7
N. J. Zinc	214½	180	206	202	203	206	
Niag. A. pfd.	...	...	...	...	80	85	
*Owens Bottle	99¾	53¾	84½	75⅛	78⅝	79	5
Penn Salt	91	71	77	74	76	77	5
*Peoples Gas Chi.	121	117	145¾	126	140¾	142	8
Proc. & Gam.	163	142½	159	157	159	...	
Royal Bak Pdr.	213	190	219	161	218	223	8
Royal Bak Pdr. pfd.	105½	102	105	99	103	104½	6
Shawinigan	191	167½	170	168	170	...	
*Sherwin-William	108	108	110	105⅞	108	110	
*St. Joseph Lead	48½	36⅝	43⅞	39	37	38½	3
Silica Gel.	22¾	11⅞	19	13⅛	15	...	
Swan & Finch pfd.	...	...	30	20	20	30	
*Swift & Co.	119	110	120¼	116	115½	115¾	8
*Tenn C & C	16	10⅞	13¼	10⅝	8½	8¾	1
*Texas Gulf & S	142	119½	175½	173	175	175½	10
*Union Carbide	100¾	78	123¾	98¾	117¾	118½	6
*United Dye pfd.	58	58	49	38¼	38¼	42	7
Un Gas Imp.	144½	84⅛	108	106	106½	108	
*U. S. Gypsum	166	126	110	107	107½	110	
*U. S. Ind. Al.	84½	45⅝	89	69	75	75½	5
*U. S. Ind. Al. pfd.	114⅞	90¼	110¼	107¼	109	110½	7
*Va Car 6% w 1	69	31⅜	36¾	26⅛	27	28	6
Will & Baumer	...	...	16½	15	16½	...	

BERGIN PROCESS COMPANY

A company, Aktien-Gesellschaft fuer Kohleveredlung und Kohleverfluessigung (Coal Refining and Liquefaction) was founded April 27 under leadership of Gesellschaft fuer Teerverwertung G.m.b.H., at Duisburg-Meiderich to operate the Bergius coal hydrogenation process on low-grade Ruhr coal. This formation has been anticipated for several months and apparently endorses the Bergin process, whose commercial operation has been doubted in several quarters on account of too high pressures and temperature.

The new formation is capitalized at five million marks, in which the following several concerns participate: (1) Aktien-Gesellschaft fuer Teerverwertung, Duisburg-Meiderich; (2) Bergwerksgesellschaft Hibernia, Herne in Westphalia; (3) Harpener Bergbau Aktien-Gesellschaft, Dortmund; (4) Gewerkschaft Koenig Ludwig, Recklinghausen; (5) Ruetgerswerke Aktien-Gesellschaft, Berlin-Charlottenburg.

I. G. Farbenindustrie Aktien-Gesellschaft, Frankfurt, Main, is inaugurating production of "oil from coal" derived by catalytic hydrogenation of lignite at its Leunawerke, at Merseburg, Central Germany.

BRITISH-GERMAN PACT

Agreement between Imperial Chemical Industries and the German dyestuff trust, which would result in lowering dyestuff prices, would hurt American industry say manufacturers. Importation of foreign dyestuffs into this country would force domestic prices down.

The arrangement between British and German interests would offer mutual advantages to Germany and England. Dyestuffs are the least profitable part of Imperial Chemical's business. German co-operation would put vitality into the British industry without involving great additional outlay of capital by Imperial. The Germans would get what they need most, access to new markets.

British Dyestuffs Licensing Committee has unanimously voted to recommend that licenses for importation of foreign dyes may be granted from Sept. 1 in respect of those dyes for which British producers demand only twice as much as the pre-war price, indicating a cheapening of British products. Hitherto the price factor imposed by the committee was two and one-half times the pre-war price.

[Industrial Chemicals]

ALCOHOL FIRM AND IN DEMAND: MERCURY FALLING

Business Quiet In May—Early June Promising—Cream Of Tartar Advanced—No Methanol Change Announced—Copper Sulfate Still Strong—Ammonium Chloride Competitive—Vermillion Advanced

Advanced

Cream of Tartar dom. and imp. 1c lb.
Vermillion English kegs 5c lb.

Declined

Ammonium Sulphate imp. 10c 100 lbs.
Antimony metal in slabs ½c lb.
Chrome Yellow ½c lb.

Trend of the Market

	Today	Two Weeks Ago	Last Month	Last Year	War Peak	Pre-War
Acetic Acid, Glacial, c-l....lb	.11⅞	.11⅞	.11⅞	.11½	.19½	..
Sulfuric Acid, Tanks 66° ..ton	15.00	15.00	15.00	15.00	55.00	20.00
Amm. Sulfate c-l NY...100 lbs	2.40	2.40	2.50	2.55	7.50	2.65
Bleaching Powder, c-l ..100lbs	2.00	2.00	2.00	2.00	9.50	1.50
Copper Sulfate c-l NY..100 lbs	4.95	4.95	4.75	4.75	20.00	4.60
Potash Caustic c-l Imp. ....lb	.07⅛	.07⅛	.07⅛	.07⅛	.37	.08
Soda Ash, 58 p.c. c-l ..100lbs	1.94	1.94	1.94	1.94	3.50	.80
Caustic Soda, 76 p.c. c-l 100lbs	3.66	3.66	3.66	3.66	9.50	1.42
Potassium Bichromate .....lb	.08¼	.08¼	.08¾	.08¼	4.65	.06
Sodium Prussiate .....lb	.12	.12	.11	.10	1.25	.18
Average	3.023	3.023	3.013	3.032	10.79	2.99

Current Quotations and Comments on Specific Items, Pages 886-896

The amount of interest centered in the industrial chemical field during the first few days of June clearly indicates that business for the current month will far surpass that transacted during May, while it was a poor month, in most directions compared favorably with May of the preceeding year. Last month, buying done cautious and of a hand to mouth character. However, early June registered a marked change from this procedure with a renewed activity in both inquiry and orders.

The ascending trend of the alcohol market is responsible for the present degree of firmness which it retains and heavier demand was experienced this week due to buyers covering on the rising market. Distillers believe that this strength will be maintained for some time and their statements will probably be reflected in either an advance in price or in the release of the Fall schedule.

Mercury receded this week and the latest quotation heard was $120.00 flask. Following the London market which was reduced £1 flask, importers, who were not satisfied with movement at the fomer prices, took this step in order to realize the margin of profit made by early purchases. A further decline is indicated by conditions surrounding this market. Cream of tartar was again advanced this week by importers due to the scarcity of argols in the primary market and domestic producers also raised their prices in proportion. Barium chloride continues to be imported in large quantities, and creates a very sharp degree of competition thereby causing price shading by both sources of supply. With the stability of lead, the derivatives are in a fairly fixed position of firmness.

Otherwise manufacturers find business of a routine and average nature and express the hope, from early indications, for a stronger demand and keener interest for both spot and contract business.

V. G., Thomas, recently vice-president of Wishnick-Tumpeer, Inc., has opened an office at 99 John st., New York City, under the name of V. G. Thomas & Co., and will deal in colors and earth pigments.

ALCOHOL SCHEDULE

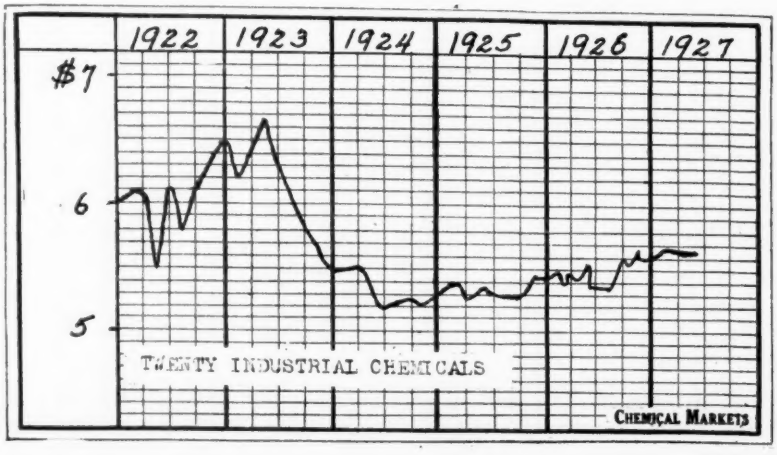
Leading alcohol manufacturers announced late Tuesday the schedule of prices to prevail until October 31. All formulae of denatured alcohol are included. The base price of 41c gal. for tankcars of No. 5 remains unchanged for June; for July an advance of 1c to 42c gal. is in force; for August a further advance of 1c to 43c; and for September and October an additional 1c advance to 44c gal.

HAMBURG CHEMICALS

(*Special to* CHEMICAL MARKETS)

Hamburg, Germany, May 24—Business in heavy chemicals has gradually improved during the fortnight; in various commodities there has been even a brisk demand. Glycerin, double distilled 28° has a good market. There was a fair demand for Bromides, especially potassium bromide. Sodium bromide and ammonium bromide were comparatively neglected. Lead sugar showed a downward tendency. Most prices for other chemicals were unchanged. Orders coming to hand from oversea are considerable. Good business has been done with South America and Central America. Business to United States and to British India is suffering from British competitors. Evidently the English exporters are trying to conquer these markets as substitutes for the markets of Japan and China, to which countries export is becoming more and more difficult owing to the financial crisis there.

Prices are fob Hamburg. Prices quoted in dollars per 100 Kilos, and prices quoted in pound-sterling are per 1000 Kilos: Caustic potash, $13.50; hyposulfite of soda, commercial cryst., £7.15.



[Crudes & Intermediates]

LIGHT OIL DISTILLATES IN SAME POSITION

Toluene Still In Heavy Demand—Benzene Retains Same Tone—Xylene And Solvent Naphtha Soft—Naphthalene Season Over—Phenol Active—Intermediates Spotty But Steady In Price

Advanced No Advances. Declined no declines

	Trend of the Market Today	Two Weeks Ago	Last Month	Last Year	War Peak	Pre-War
Benzene, pure tanks wks ...gal	.23	.23	.23	25	1.10	.25
Naphthalene flake .....lb	.04½	.04½	.04½	.05½	.16	.03
Phenol Spot .....lb	.17	.17	.17	.22	1.50	.08
Toluene tanks wks .....gal	.35	.35	.35	.35		
Aniline Oil le-l	.15	.15	.15	.16	1.40	.10½
Alpha-naphthylamine .....lb	.35	.35	.35	.35	1.25	—
Benzaldehyde .....lb	.70	.70	.70	.70	—	—
Betanaphthol bbls .....lb	.24	.24	.24	.24	1.50	.08
Dimethylaniline e-l	.32	.32	.32	.30	1.30	
Paranitroaniline bbls. .....lb	.52	.52	.52	.47	1.58	.18
Average	3.08	3.08	3.08	0.310		

Current Quotations and Comments on Specific Items, Pages 886-896

Light oil distillates retain the same position, which they have been forced to maintain during the last few months. Purchases are being made at the same scale and present conditions surrounding this group, hardly indicate an immediate change.

The benzene outlook is far from promising. With the enormous production of pure benzene due to heavy demand for toluene, those interested do not hold any hope for this commodity to regain its former position for some time. Gasoline has again been reduced locally which unfortunately, does not tend to create a firmer tone to benzene. Solvent naphtha and xylene are closely allied to benzene, in respect to position and weak markets at low prices feature them. The season for naphthalene has terminated and this material will probably recline to a dormant state until the opening of the new season.

Producers of intermediates are holding the present prices without exception. The demand is termed as being spotty, but averaging up to fair quantities for this time of the year, and despite the usual dullness movement compares favorably with the quotas expected by manufacturers. Phenol seems to stand out as the most attractive buy among the intermediates and users are covering their needs at the present price of 16c although the market shows a tendency towards a decline due to production capacity greatly exceeding consumption figures. Paranitraniline and betanaphthol are similar as to position and price. There is an abundance of anline oil offered at 14½c in carload, with less carload lots proportionately lower.

Toluene continues at the same steady gait and firm price which it has commanded recently. The lacquer industry, its principle avenue of consumption is continually buying to its capacity both on spot and contract, creating a scarcity of supplies for other uses. The interest shown does not indicate a relief from the very tight position that it now occupies.

National Aniline and Chemical Co. has leased a building on Lewis Wharf, Boston,as a warehouse and offices for the company's New England branch.

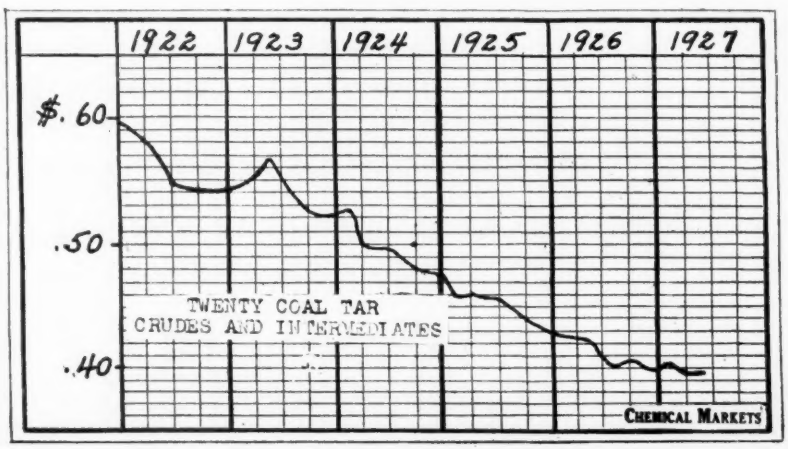
NEW DU PONT COLOR

E. I. du Pont de Nemours announce Pontamine Fast Blue 6GL, suitable for delicate and medium shades. The dyestuffs department says it has good fastness to acids, alkalies, ironing and rubbing, good resistance to perspiration and stoving, and more than the usual fastness to light, water and washing for a color of this shade.

When speck dyed, Pontamine Fast Blue 6GL leaves the animal fibers practically unstained. When union dyed the wool is stained slightly. The silk of half-silk dyed neutral at the boil is left practically white in 1% dyeings. Celanese is not stained. On rayon and silk Pontamine Fast Blue 6GL produces clear greenish blues. It can be used for printing and discharges to a clear white on cotton and silk.

The April production of by-product coke amounted to 3,707,000 tons, a decrease of 172,000 tons compared with the output during the preceding month. Seventy-seven active plants produced about 85% of their capacity. The output of bee hive coke declined, the estimated total for the month being 780,000 tons, a decrease of 110,000 tons, or 12.4% as compared with March. The output of all coke was 4,487,000 tons, of which 82.6% was contributed by by-product ovens and 17.4% by bee hive ovens.

A group of I. G. Farbenindustrie heads arrived in London to conclude dyestuffs agreement with Imperial Chemicals. Imperial's reduction in dye prices by 20% was made in anticipation of lower production costs through German agreement.



[Oils and Fats]

CHINAWOOD OIL HIGHER HERE ON ROUTINE INTEREST.

Advance Rather Unexpected in Face of Thoroughly Routine Interest—Cottonseed Easier on Spot—Sales Volume Normal—Linseed Firm on Spot Though Argentine Seed Market is Off—Perilla Oil Downs Rapeseed and Soya Bean Moving Steadily.

Advanced

Chinawood Oil, spot bbls., 1c lb. Chinawood Oil, tanks Coast, ¾c lb.

Declined

Cottonseed Oil, crude Tex., ⅛c lb. Perilla Oil, Coast, ½c lb.
Cottonseed Oil, PSY spot, 0.5c lb. Perilla Oil, spot, ¼c lb.

Lard No. 1 .....gal	.73½	.77	.77	.85¾	2.90	.92
Neatsfoot 20° ct .....gal	1.24¼	1.06¾	1.06¾	1.34	8.45	.95
Red Oil distilled .....lb	.09	.09½	.09½	.10	.17	.07
Stearic Acid T. P. .....lb.	.13¼	.13¾	.13¾	.16½	.38	.12
Coconut Ceylon tanks .....lb	.08⅛	.08	.08	.11½	.30	.14
Cottonseed, crude tanks ....lb	.08	..07¾	.07½	.14	.25	.08
Linseed crude c-l bbls.....gal	.84¾	.84	.78¾	.80	1.85	.57
Olive, denatured .....gal	1.68	1.65	1.70	1.15	4.60	1.05
Peanut refined .....lb	.15½	.16¼	.15½	.15	.30	.08
Soya Beans bbls. .....lb	.12	.12	.12	.12¾	.19¼	.07
Average	4.888	4.87	4.87	4.69	5.92	1.50

Current Quotations and Comments on Specific Items, Pages 896-898

While business in the oil market has not been brisk over the past week the volume of business on most items seems better than has been the case during most of April and May. The notable exception to this condition is Chinawood oil in all positions, which is unusually quiet for this season. There is no lack of interest on consumers part, but they refused to purchase to any extent with present conditions, in spite of the fact that the market has again shown strength and is quoted higher this week. As a result actual business has been very slow for the past ten days. Although prices have advanced here and on the Coast, factors are of the opinion that there are good stocks of oil in China, which will be released sooner or later.

Linseed is holding up well in spite of a decline on the Argentine seed market with varnish makers taking average quantities of oil. Sales of refined cottonseed oil have been of fair volume in recent weeks, but the market was posted as easy and off at the opening this week. Crude oil is about unchanged from last week's position. Perilla oil has been forced from the foreground by the recession in Chinawood and is quiet at present on a lower market both here and on the Coast. Activity is expected in menhaden oil with the start of fishing toward the latter part of this month, though there has been no change from the nominal price which has ruled for some time past. Both denatured olive oil and foots continue in the position which has characterized them for the past month. Foots are in better demand than denatured oil but neither are particularly active, and dealers state they are not qualified to predict the date of return to normal conditions. It is admitted that the market will continue routine on denatured until the Spanish price is lowered.

Rapeseed and soya bean oils are both moving up to sellers expectations with prices maintained without difficulty. While the market for animal oils and fats is characterized as quiet, prices on the entire line are generally steady with upward trends noted in neatsfoot and oleo oils.

COTTON CROP FINAL 17,977,374 BALES

Final figures on the cotton crop of 1926 show 17,977,374 bales of 500 pounds each ginned. This exceeds by 1,842,444 bales the previous high record crop of 1924. Department of Commerce stated its Census Bureau soon would distribute the annual bulletin on cotton production from the last crop.

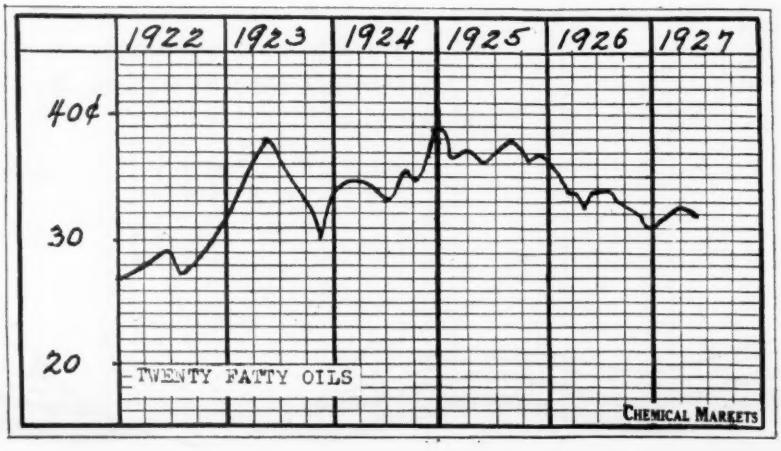
Northern Industrial Chemical Co., Boston, for the year ended Dec. 31, 1926, reports: Assets: Machinery, $60,615; furniture, fixtures and tools, $3,548; merchandise, $58,644; accounts receivable, $63,565; cash, $39,913; securities, $48,889; advertising inventory $1,016; secret process, $26,700; drums, $2,970; total assets, $305,860. Liabilities: Common stock, $27,000; accounts payable, $12,522; surplus, $266,338; total liabilities, $305,860.

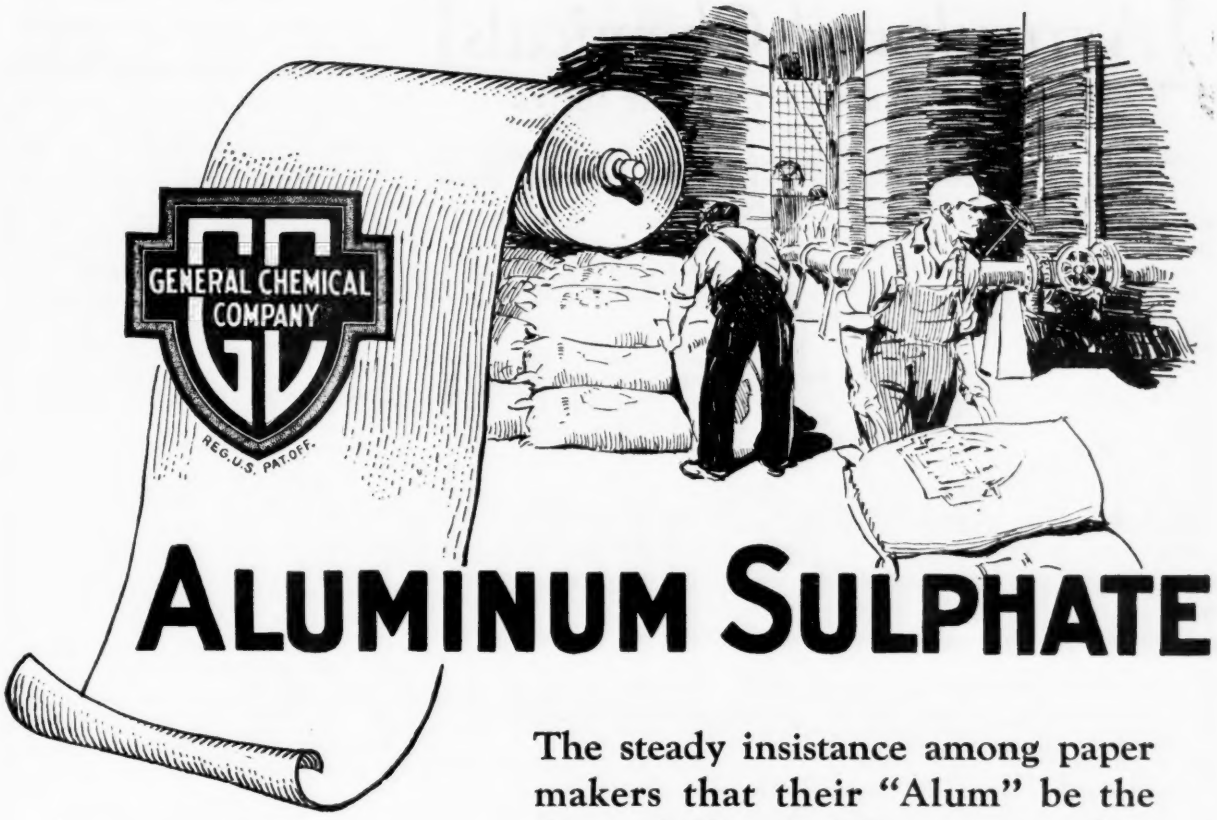
Robert Gibson, treasurer Interstate Cottonseed Crushers Association died in Dallas, Texas June 2 at the age of 93. He was born in Nashville and served in the confederate army during the Civil War.

Akron Varnish Co., Akron, O., is building a lacquer plant at Detroit. W. B. Beck, president, is in Europe making a study of pigments used in automotive finishes.

Charles E. Field, Chicago Paint Club, has completed 50 years service with National Lead Co. He was born in Greenfield, Mass., in 1857.

Scholler Bros., Inc., soap manufacturers of Philadelphia, Pa., will build a plant at St. Catharines, Ontario, Canada, to supply customers in Canada.





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THE NICHOLS CHEMICAL COMPANY, LIMITED, MONTREAL

GC 220

[Agricultural Chemicals]

NITRATE OF SODA FUTURE MARKET ACTIVE

Sulfate Of Ammonia Moving—Potassium Muriate Scarce With No Demand—Blood and Tankage Dormant—Calcium Arsenate Stirring In The South—Insecticides Moving Regularly

Advanced

Sod. Nitrate July shipment 17c 100 lbs.

Declined

Ammonium Sulphate Imported 10c 100 lbs.

Trend of the Market

	Today	Two Weeks Ago	Last Month	Last Year	War Peak	Pre-War
Acid Sulfuric 66° .....ton	$15.00	$15.00	$15.00	$15.00	$55.00	$20.00
Amm. Sulfate .....100 lbs	2.40	2.40	2.45	2.60	1.75	2.65
Arsenic .....100 lbs	3.75	3.75	3.75	3.50	18.00	4.00
Copper Sulfate c-l ....100 lbs	4.95	4.95	4.75	4.75	20.00	4.60
Paris Green	.19	.19	.19	.19	.50	.11
Potash Muriate 80% .....ton	36.40	36.40	36.40	34.90	...	...
Potash Sulfate 90% .....ton	47.30	47.30	47.30	45.85	440.00	48.07
Phosphate Acid 16% .....ton	10.00	10.00	10.00	10.00	11.00	3.00
Phosphate Rock 68% .....ton	3.00	3.00	3.00	3.15	2.65	3.00
Sodium Nitrate .....100 lbs	2.60	2.60	2.65	2.57½	5.00	1.90
Average	12.550	12.550	12.550	11.925	103.50	13.84

Current Quotations and Comments on Specific Items, Pages 886-900

Nitrate of soda is at an interesting angle to-day, despite the arrival of closing season. There has been little activity during the past few weeks but prices are firmly held, even with buying at a standstill. Interests seems concentrated upon material for future shipment and the lowest price quoted for July-December delivery is 2.25 100 lbs. As there is a minimum amount of spot goods at hand and very little material being exported from the source, the future of this commodity should present an interesting spectacle when the many buyers who have not already covered, attempt to do so.

When the transfer of the German selling agency on potash salts was effected, a general shortage occurred in the local market, particularly on potassium muriate. This condition was at an acute point for some time but is now relieved somewhat by the decreasing demand. A scarcity still exists but it is not great enough to create a change in price at this time, the end of the season and the 8 per cent discount allowed by the sellers on all orders placed before June 5th has terminated, and a 7 per cent reduction is now in effect.

Blood and tankage have declined to an easy position and will probably remain so until the new season. Insecticides while generally slow are moving in good volume in some territories, calcium arsenate in particular, which is being transported in good round quantities toward the cotton bearing States.

Importers have reduced their prices on sulfate of ammonia in order to meet domestic prices of $2.40 100 lbs and plentiful supplies of both are moving at a steady pace to a consuming demand of a routine and average nature.

Societe de Recherches Salines is seeking to obtain a concession for the exploitation of potash and allied salts in the communes of Oberhergheim, Bilsheim, Niederentzen, Oberentzen, Meyenheim, Hirtzfelden and Reguisheim, in the district of Guebwiller (Haut-Rhin). It is a limited liability company, with capital of 1,500,000 francs, with its official address at Mulhouse.

WEEVIL MENACE

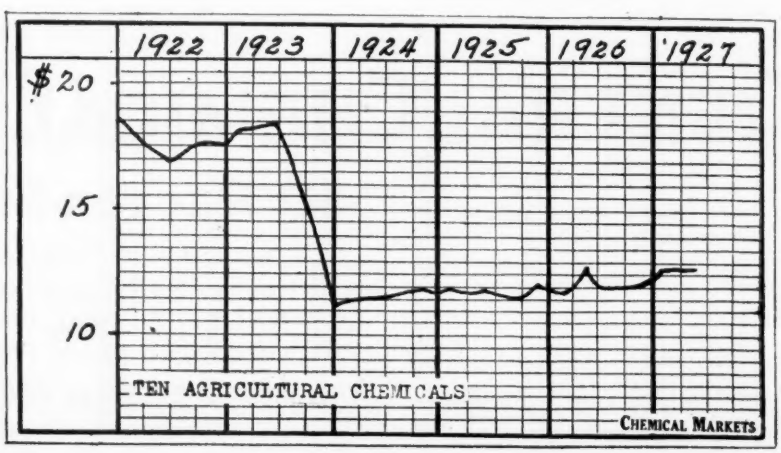
Continued evidence of a greater boll weevil menace this year than last is shown in the fifth of a series of reports that are being issued by Department of Agriculture. In a report on weevil emergence for the period prior to May 16 it is noted that a greater survival was recorded this year than in 1926 for Aberdeen, N. C.; Florence S. C.; College Station, Tex.; Agricultural and Mechanical College of Mississippi, and Holley Springs, Miss. The reverse of this situation is noted at Auburn, Ala.; Poplarville, Miss.; Baton Rouge, La., and Experiment, Ga.

Comparing weevil survival prior to May 16 this year and in 1925, the report shows, survival was recorded this year at Aberdeen, N. C., Florence, S. C., and Rocky Mount, N. C., while a greater survival was recorded in 1925 at College Station, Texas; Auburn, Ala.; Holly Springs, Miss.; Baton Rouge, La., and Experiment, Ga.

Records in past years at Tallulah, La., show that an average of 60.1 per cent of the total survival is completed prior to May 16.

National Fertilizer Association says: "Shipments to dealers for the five months, December-April, were only 6.1% less than for the like period of the previous season. Total shipments (which include some duplications in both seasons) were only 11.3% less than for last season. Since sales of all fertilizer were reduced by a somewhat larger percentage, a slight increase in the sale of acid phosphate relative to mixed fertilizer is indicated."

Produce & Chemical Co., Manhattan (New York City) has been dissolved.



[Industrial Raw Materials]

TURPENTINE DOWN DUE TO HEAVY RECEIPTS

Rosin Somewhat Lower—Shellac Stocks Scarce Both Here and Abroad Tanning Materials Fair—Carnauba Wax Moderately Active—Varnish Gums Quiet During May—Increase Expected In June

Advanced

Mangrove Bark, $2.00 ton.
Myrobalans, $1.50 ton.
Shellac, Garnet, 1c lb.

Declined

Egg Yolk, 3c lb.
Sumac, $2.00 ton.
Turpentine, 3½c gal.
Rosins B, 10c 280 lbs.
Rosins D, E, 30c 280 lbs.
Rosins F, 25c 280 lbs.
Rosins G, H, I, K, M, 30c 280 lbs.
Rosins N, WG, WW, 25c 280 lbs.

Current Quotations and Comments on Specific Items, Pages 898-900

The consistent strength shown in shellac is of foremost interest among this group and although prices have not materially changed, a scarcity of supplies both here and abroad, have a tendency to force importers to name even higher figures.

Turpentine took a decided drop this week and is now quoted at 54c gallon, a decline of 3½c gallon. The market however assumes an air of steadiness although a further downward tendency is prominent. Rosin remains firm but prices are somewhat lower than those formerly named. Although receipts are heavy and are causing the prices to decline, the demand is expected to increase and reach a point where recoveries will be made rapidly.

Carnauba wax is commanding a more spirited amount of interest this week and egg albumen and yolk remain unchanged but a shortage of spot stocks is evident due to the irregularity of Chinese shipments. Varnish gums are quiet at this time with interested parties more or less concentrating upon kauri and Batavia damar but importers however highly anticipate an increase in consuming demand during the current month. Tanning materials are in fair demand and although lowering prices prevail, interest assumed a lively aspect during the past few weeks and importers are expectant of its sustenance. Starches and dextrins are unchanged.

(*Special to* CHEMICAL MARKETS)

Savannah, Ga., June 4—The turpentine market closed the week at 54c gallon, a decline of 3½c gallon for the week. There is a downward tendency to the market and with the heavy receipts expected, the price may go a little lower for a few days before settling. Buying is in good volume but sellers are accepting bids fractionally below the market price in their anxiety to move the heavy stocks being received. A settled price is looked for at any time now and some consumers will probably buy considerable amounts now. Receipts this week were 6,326 bbls., sales 3,139 bbls., (possibly about 3,000 bbls. sold but not reported and also including shipments against June contracts) shipments 1,983 bbls. Present stocks 23,054 bbls.

The rosin market is fairly firm although prices are materially lower than they were a week ago. The heavy receipts are responsible for the lower values and the presence of a brisk demand prevents the prices from declining further. Latest indications show some steadiness in price but there may be a slightly lower scale before a general recovery is made in prices. Receipts of rosin this week were 20,207 bbls. with sales reported of 7,707 bbls., (Additional lots amounting to 10,000 bbls. of private term sales as well as contract deliveries). Shipments this week were 24,821 bbls. and the remaining stock to-day is 55,272 bbls. Current quotations are: B,D, $8.40@$8.60; E, $8.50@$8.60; F, G, H, I, $8.60; K,M, $8.60@$8.65; N, $8.65; WG, $9.85; WW, $11.00.

Jacksonville, Fla.,— Turpentine market closed firm at 54c. Sales of 435 bbls. to four buyers but 100 bbls., remained awaiting a higher bid than 54c. Present stocks 22,339 bbls. Rosin stocks are 62,853 bbls. and current market quotations are WW, $11.00@$11.05; WG, $9.85; N $8.65; M,K,I,H,G,F,E, $8.60@$8.65; D,B $8.50@$8.60

Thompson and Co., paint manufacturers, Pittsburgh, have opened a factory at Oakmont, Pa. The capacity is 40 to 50 barrels daily.

NEW NITRATE RATES

Washington, D. C., June 8—All rail rates on imported nitrate of soda, in carloads, from New Orleans and other Gulf ports to points on and north of Ohio River have been found unreasonable by Interstate Commerce Commission, but not unjustly discriminatory, unduly prejudicial or in violation of the aggregate-of-intermediates clause of the fourth section. Certain shipments were found to have been overcharged. This decision was rendered in the case of Egyptian Power Co. against Central Railroad Co. In the same case the Commission found that water--and-rail rates on imported nitrate of soda, in carloads, from New Orleans and other Gulf ports to Lockland, Hegewisch, Ill., and Grasselli, Ind., were unreasonable but not unjustly discriminatory or unduly prejudicial.

The Commission found also that rates on sulfate or potash, muriate of potash, and kainit, in carloads, from New Orleans and other Gulf ports not unreasonable except to Peoria and Springfield, Ill., and points grouped therewith. Reasonable rates were prescribed for the future and reparation awarded.

NITRATE STOCKS SMALL

Slight increase in Chilean nitrate by wholesalers for future delivery is reported by the U. S. commercial attache at Santiago.

Nitrate sales under the free trading agreement have thus far been very small and below early estimates, but prices continue firm at about 16s 9d for early delivery.

Thirty oficinas working at the end of April produced 990,500 metric quintals of nitrate, compared with 2,163,623 metric quintals in April, 1926. Exports were 1,254,546 metric quintals, compared with 1,141,758 metric quintals for April last year. World stocks at the end of April were 12,351,774 metric quintals, compared with 16,612,387 metric quintals on the same date of last year.

Explosives manufactured in United States and sold in April 1927 for domestic consumption amounted to 303,100 kegs (7,577,500 pounds) of black blasting powder, 5,030,000 pounds of permissible explosives, and 26,888,000 pounds of high explosives other than permissible. Reports actually received showed sales of 297,002 kegs of black powder.

Prices Current

Heavy Chemicals, Coal-tar Products, Dye-and-tanstuffs, Colors and Pigments, Fillers and Sizes, Fertilizer and Insecticide Materials, Naval Stores, Fatty Oils, etc.

Chemical prices quoted herein are those of American manufacturers for goods, spot New York, f. o. b., or ex-store, for immediate shipment, unless otherwise specified. Industrial chemical products sold principally on a basis of f. o. b. works are specified as such. Quotations on imported chemicals are so designated. Resale stocks sufficient to be a factor in the market, are quoted in addition to makers' prices and are indicated as "second hands."

Oils and fats are quoted spot New York, or ex-dock. Quotations on products sold f. o. b. mills, or spot Pacific Coast are so designated.

Industrial raw materials are quoted spot New York, f. o. b., or ex-dock. Materials sold f. o. b. works or delivered at various sections of the country are so designated.

The range of prices given is not "bid and asked," but indicates quotations from different sellers, based on varying grades or quantities or both. Containers named are the original packages most commonly used in the New York market.

Acetaldehyde
Acid Laurent's

Chemicals

Acid Metanilic
Alcohol Ethyl Denatured

Acetaldehyde drs., or cyl. c-l wks	lb	...	.22
lc-l wks	lb.	.24	.26
ACETANILID, tech 150 lb bbls	lb	.20	.21
100 lb kegs	lb	.22	.23
Acetic Anhydride			
85% 100 lb cbys	lb,	.27	.30
92-95% 100 lb cbys	lb	.29	.35
Acetic Ether, see Ethyl Acetate			
Acetine, 50gal drums	lb.	.37	.40
Acetone, CP, 700 lb drs c-l wks	lb	...	.12
Tank cars, wks	lb	...	.12
350 lb drs. lc-l wks	lb	...	.14
700 lb drs., lc-l wks	lb.	.13	.13½
Acetone Oil light drs N. Y.	gal	1.65	1.75
Heavy, drs NY	lb	1.65	1.75
Acetyl Chloride, 100 lb cbys	lb	.42	.45
Acetylentetrabomide	lb	...	1.50
ACID, Acetic, 28% 400 lb bbls c-l wks	100 lb	...	3.38
56% c-l wks	100 lb	...	6.34
70% bbls c-l wks	100 lb	...	7.82
80% com'l bbls c-l wks	100 lb	...	8.77
80% pure bbls c-l wks	100 lb	...	9.75
Glacial bbls c-l wks	100 lb	...	11.92
Glacial USP cby wks	10 lb	...	12.65
Lc-l 25c 100 lbs differential			
Anthranilic, tech., drs	lb	...	.80
99-100% 100 lb drs	lb	.98	1.00
Benzoic, tech., 100 lb bbls	lb	.57	.60
Boric crys., powd., 250 lb bbls	lb	.08½	.11
Kegs 100 lb	lb	.09½	.12
Carbolic, crys., see Phenol			
Crude 35% 50gal bbls	gal	.31	.33
10% 50gal bbls		.25	.28
Carbonic, see Carbon dioxide			
Chloracetic			
Mono 100 lb bbls wsk	lb	...	.25
Di. 150 lb crbys wks	lb.	...	1.00
Chlorosulfonic 1500 lb drs wks	lb	.15	.16
Chromic 98% 400 lb drs	lb	.37	.40
Chromotropic, 300 lb bbls	lb	1.00	1.06
Citric, USP, cryst 230 lb bbls	lb	.44	.44½
Powd, USP, 200 lb bbls	lb	.45	.45½
Imported crys. 112 lb kegs	lb	..	.57
Cleve's' 250 lb bbls	lb	.95	.97
Cresylic, 95% dark drs NY	gal	.57	.60
97-99% pale NY	gal	.60	.65
Formic, 85% tech., 140 cbys	lb	.10½	.11
Gamma, 225 lb bbls wks	lb	1.00	1.06
H 225 lb bbls wks	lb.	.57	.63
Hydrobromic, 48% com'l 155 lb cbys wks	lb	.45	.48
Hydrochloric (see Acid Muriatic)			
Hydrocyanic wks cyl	lb	.80	.90
HYDROFLUORIC, 30% 400 lb bbls wks	lb	...	.06
30% 100 lb cbys wks	lb	...	.08
48% single 100 lb cbys wks	lb	...	.10
52% 100 lb cby., wks	lb	...	.12
52% 100 lb cbys wks	lb	...	.11
60% 100 lb cby wks	lb	...	.14
60% 300 lb dr wks	lb	...	.13
White Acid 100 lb cby wks	lb	.25	.26
Hydrofluosilicic, 35% 450 lb bbls wks	lb	...	.11
J kegs wks	lb	...	3.00
LACTIC, 22% dark 500 lb bbls	lb	.05½	.06
22% light bbls	lb	.06½	.07
44% dark bbls	lb	.11	.12
44% light bbls	lb	.13	.13½
Laurent's 250 lb bbls	lb	.52	.54
Tank Cars	gal	...	.33½

Acetone — The domestic consumption is of an average nature at firm and unchanged prices and a continued demand for export noted.

Acid Acetic — Is in fair demand and makers are experiencing no trouble in maintaining the present scale of prices.

Acid Citric — Is being sold in fair sized quantities at the moment. Domestic supplies are procurable at the new schedule of 44c@44½c lb. which is considerably below that of the importers, who quote a price of 57c lb. duty paid.

Acid Nitric — Has not altered its position, however, a decided change in the price of Chilean nitrates, might lend a stronger tone to this market.

Acid Oxalic — Remains at a very firm station in all quarters. Fair quantities of foreign material are being consumed readily and the demand for domestic is even heavier.

Acid Tartaric — Is in good motion at this time, prices are maintained with ease and present conditions indicate an ascending trend above the present price of 33c lb.

Alcohol — Denatured appeared stronger this week and producers believe that the present firmness will hold. Rumors are current that this belief would express itself in either an advance in price or a release of the fall schedule in the near future. Prices are the same at the moment the basic price for No. 1 is 43½c gallon and No. 5 41c gallon, f. o. b. distillery base points.

Ammonium Anhydrous — Consumers are drawing the ample supply of producers stocks at a moderate pace, although low tempera-

ACID, HYDROFLUORIC (Cont'd)			
ACID, Metanilic, 250 lb bbls	lb	.60	.65
Mixed, Sulfuric-nitric			
Drums, wks	N Unit	.07¾	.08
Drums, wks	S Unit	.01	.01½
Tank cars, wks	N Unit	.06	.03½
Tank cars, wks	S Unit	.008	.01
Monosulfuric F Delta 50 lb tins	lb	...	.65
MURIATIC, 20° cbys wks 100 lb		1.70	1.80
cbys c-l wks	100 lb	...	1.45
Tank cars wks	100 lb	...	1.05
18° 120 lb cbys c-l wks	100 lb	...	1.35
Tank cars, wks	net ton	...	.95
Naphthionic tech, 250 lb bbls	lb	.55	.59
N. & W. 250 lb bbls	lb	.95	.99
NITRIC 36° 135 lb			
Cbys c-l wks	100 lb	...	5.00
40° cbys c-l wks	100 lb	...	6.00
42° cbys c-l wks	100 lb	...	6.50
Lc-l 100 lbs, differential			
CP, cbys single wks	100 lb	.12	.13
Oxalic, 300 lb bbls wks N. Y.	lb	.11	.11½
Imp., 560 lb casks	lb.	.11⅜	.12
Phosphoric, 50% 150 lb cbys	lb	.07	.07½
Syrupy USP, 70 lb drums	lb	...	.17
Demis	lb	...	.18
Imported	lb	.16	.16½
Phthalic, See Phthalic Anhydride			
Picramic, 300 lb bbls	lb	...	.50
Picric, 450 lb bbls c-l	lb	.30	.33
Pyrogallic tech 200 lb bbls	lb	...	.86
S kegs	lb	...	2.50
Salicylic tech., 125 lb bbls	lb	.27	.32
Sulfanilic, 250 lb bbls	lb	.15	.16
SULFURIC, 66° 180 lb cbys			
lc l wks	100 lb	1.60	1.95
Cbys c-l wks	100 lb	...	1.35
1,500 lb drums wks	100 lb	...	1.20
Drums c-l wks	100 lb	...	1.00
Tank cars, wks	net ton	...	15.00
60° 1,500 lb drums wks	100 lb	...	1.10
Drums c-l wks	100 lb	...	.87½
Tank cars, wks net ton		...	10.50
C. P. 175 lb cbys	100 lb	.07	.08
Oleum 20 pc 1500 lb drums			
lc-l wks	100 lb	...	1.50
Drums c-l wks	100 lb	...	1.25
Tank cars wks	net ton	18.00	19.00
Oleum 40% drs lc-l wks net ton		...	42.00
Oleum 60% drs wks net ton		62.00	72.00
Tannic, tech., 300 lb bbls	lb	.30	.40
Tartaric, USP, cryst powd 300 lb bbls	lb	...	.33
Imp., USP., 240 lb bbls	lb	...	.33
Tobias, 250 lb bbls	lb	...	.85
Tungstic, 100 lb kegs	lb	...	1.00
ALCOHOL, amyl See Fusel Oil			
Butyl Normal 50gal drs wks c-l	lb	.19	.20
Drums lc-l wks	lb	.19½	.20½
Tank cars wks	lb	.18½	.19½
Butyl Tertiary 50gal drums	gal	.50	.54
Diacetone, 50gal drs del.	gal	1.70	1.90
Ethel USP 190pf 50gal bbls	gal	...	3.70
Anhydrous, drums	gal	.50	.55
Denatured			

Chemicals

ALCOHOL, Ethyl, Denatured	...	:	...
No. 1 Complete denat 190 pf			
50 gal bbl incl ....gal	...	:	.54½
Carlots .....gal	...	:	.52½
50 gal drums extra ..gal	...	:	.47½
Tank cars .....gal	...	:	.43½
No. 5 Complete denat. 188pf			
50 gal bbl incl ....gal	...	:	.52
Carlots .....gal	...	:	.50
50 gal drum extra ..gal	...	:	.43
Tank cars .....gal	...	:	.41
Isopropyl, refined, 90-91% 50			
gal drs .....gal	1.00	:	1.25
Propyl nml., 50gal drs ....lb	...	:	1.00
Ref'd 98-99% drs .....gal	1.25	:	1.50
Aldehyde Ammonia, 100gal drums lb	.80	:	.82
Alpha-Naphthol crude 300 lb bb's lb	...	:	.65
Refined .....lb	.85	:	.90
Alpha-Naphthylamine, 350 lb bbls lb	.35	:	.37
ALUM, Ammonia, lump, 400 lb bbls			
wks 1c-1 .....100 lb	3.15	:	3.50
Ground 400 lb bbls wks 100 lb	3.25	:	3.65
Powd, 380 lb bbls wks 100 lb	3.65	:	3.90
Chrome, 500 lb cks, wks lb	5.25	:	5.50
Potash, lump, 400 lb wks 100 lb	3.50	:	3.75
Bbls c-1 wks .....100 lb	3.35	:	3.40
Imported lump .....100 lb	...	:	3.25
Ground, 400 lb bbls wks 100 lb	3.50	:	3.85
Imp., 350 casks ...100 lb	2.65	:	3.00
Powd., 380 lb bbls wks 100 lb	3.50	:	4.00
Chrome, 500 lb casks wks 100 lb	5.25	:	5.50
Soda Grd., 400 lb bbls wks 100 lb	...	:	3.75
Bbls., c-1 wks ...100 lb	...	:	3.50
Aluminum metal, c-1 NY ..100 lb	...	:	26.00
Chloride, anhyd 275 lb drs .lb	.35	:	.40
Crystals, 375 lb bbls ...lb	...	:	.06½
30% sol., 120 lb cbys lb	...	:	.08
Hydrate 96% light 90 lb bbls lb	.17	:	.18
Hvy., 62-64% 220 bgs lb	.06	:	.06½
400 lb bbls wks ....lb	.06½	:	.07
Stearate, 100 lb bbls .....lb	.23	:	.24
SULPHATE, iron-free bags c-l			
wks .....100 lb	.....	:	1.75
Bbls c-1 wks .....100 lb	...	:	1.90
Imported, spot ...100 lb	1.60	:	1.65
Com'l bags c-1 wks 100 lb	1.35	:	1.40
Bbls c-1 wks ...100 lb	...	:	1.55
Amidol (See Diaminophenol)			
Aminoazobenzene, 110 lb kegs..lb	...	:	1:15
AMMONIA, anhyd, 100 lb ....lb	.11	:	.12½
Water, 26° 800 lb drs del ..lb	...	:	.03
Drs., c l delivered ....lb	...	:	.02¾
Tanks .....lb	.02¼	:	.02½
CP cbys .....lb	...	:	.12
Acetate, 100 lb kegs .....lb	...	:	.34
Bifluoride, 300 lb bbls .....lb	.21	:	.22
100 lb kegs .....lb	.22	:	.23
Bromide, 450 lb bbls 50 lb bxs lb	...	:	.55
Imported, 112 lb boxes ...lb	.50	:	.52
Carb. tech., 500 lb cases ...lb	.08¾	:	.09
Powd. tech., 550 lb cks lb	.07¼	:	.07¾
USP,lump 100 lb kegs ...lb	.11	:	.11½
Powd. 100 lb kegs ....lb	.13	:	.13½
Chloride White 250 lb bbls wks lb	.05¼	:	.05½
250 lb bbls c-l wks .....lb	...	:	.05
Imp. white 600 lb cks lb	...	:	.05½
C. P. USP gran bbls ....lb	.13		.13½
Gray, 250 bbls wks ....lb	.05¾	:	.06
Bbls., c-1 wks .....lb	...	:	
Imp. gray 550 lb cks ..lb	.06	:	.06¼
Iump. 500 lb casks spot ..lb	.11	:	.11¼
Lactate, 500 lb bbls .....lb	.15	:	.16
Refined Crystals bbls ....lb	...	:	.20
Oxalate, pure 100 lb kegs ...lb	.35	:	.37
Persulfate, 112 kegs .....lb	.27½	:	.30
Phosphate, dibasic 200 lb bbls	...	:	.38
Tech., powdered 325 lb bbls lb	...	:	.18
Mono, 325 lb bbls .....lb	.12	:	.12½
Sulfate, bulk c-1 .....100 lb	...	:	2.40
Southern points .....100 lb	...	:	2.40
Imp., 200 dbl bgs fas 100 lb	...	:	2.40
Sulfocyanide tech., 100 lb kgs lb	.40	:	.45
Amyl-Acetate, tech., 50gal drs gal	...	:	2.25
Refined 50gal drums ...gal	2.40	:	2.50
Sulfocyanide tech., 100 lb kgs lb	.40	:	.45
Amyl-Acetate, tech., 50gal drs gal	...	:	2.00
Refined 50gal drums ....gal	2.15	:	2.24
Alcohol, see Fusel Oil			
ANILINE OIL, 960 lb drums ..lb	.15	:	.16
Carlots, wks .....lb	...	:	.14½
Salt 200 lb bbls .....lb	...	:	.24
Anthracene, 80-85% 600 lb casks			
wks .....lb	.60	:	.65
Anthraquinone, sub 125 lb bbls lb	.90	:	1.00
Antimony metal slabs tons lots lb	.12¾	:	.13
Needle powd 100 lb cs lb	.15½		.16

tures prevail throughout the East. Prices are in a firm position and no change is anticipated for some time.

Ammonium Chloride — Since the recent reduction of domestic material to 5¼c lb. and with sales of good volume, competition between makers and importers has reached a very keen point. At its present angle the future position of this commodity is not discernable. Some sellers are holding their present supplies for higher prices while others are taking advantage of the good demand and are releasing material at the prevailing level.

Ammonium Sulfate — Importers have now reduced their schedules to $2.40 100 lbs. to cope with those named by domestic producers in order to clear the market of the plentiful supply at hand.

Aniline Oil —Offers of carloads continue at 14¼c lb. to a quiet market.

Antimony — Is easier this week at 12¾c lb. for metal in slabs. This market is irregular, as China is not making shipments with the customary regularity, however, enough material is coming in to meet the requirements of a quiet consuming demand. With a heavier demand, the market would undoubtedly assume a much stronger tone.

Arsenic — The consuming season is at hand and has created a more colorful tone to this market, which heretofore has been dull and featureless at 3¾c lb.

Barium Chloride — Importers continue to bring in heavy supplies and in consequence a weakness is shown. Price shading is still evident from both sides who are quoting below the scheduled prices in effort to secure the available business.

Benzene — Distributors who had been quoting a price of 24c gallon, are now openly naming 23c gallon as the basic price, however, the major portion of the small amount of business which is current, is transacted at 22c gallon.

Beta-Naphthol — Demand is of a quiet and consuming nature and chiefly from contractors who are drawing quantities close to their requirements.

Bleaching Powder — The market is steady at prevailing levels with average sales reported.

ANTIMONY CHLORIDE, anhyd 1000 lb			
drs .....lb	.16	:	.17
50 lb crocks .....lb	.45	:	.48
Sol'n 130 lb carboys 48° lb	...	:	.17
Oxide, 500 bbls .....lb	.16¼	:	.17
Sulfuric golden, 250 bbls lb	.15	:	.16
Crimson 250 lb bbls .....lb	.25	:	.27
Vermillion, 250 lb bbls ...lb	...	:	.37½
Tartro'actate, 500 lb bbls ..lb	...	:	.45
Arsenic metal 220 lb kegs ....lb	.45	:	.50
Red, 224 kegs cases ....lb	.10½	:	.11
White, 112 lb cases NY.....lb.	...	:	.03¾
BARIUM BINOXIDE, see Barium dioxide			
Carbonate 300 lb bbls wks ton	50.00	:	52.00
200 lb bgs wks .....ton	47.50		50.00
Imports, casks NY ... ton	47.00	:	48.00
Chlorate, 112 lb kegs NY ...lb	.12	:	.12¼
Chloride, 800 lb bbl wks ...ton	61.00	:	63.00
200 lb bgs wks .....ton	60.00	:	62.00
Dioxide, 88% 690 lb drs ...lb	.13	:	.13½
Import, 86-88% 400 lb drs lb	.13	:	.13½
Hydrate, 500 lb bbls .....lb	.04¾	:	.04¾
Nitrate, 700 lb csks .....lb	.07½	:	.08
Sulfocyanide 600 bbls .....lb	.27	:	.28
arytes, floated 350 lb bbls wks ton	23.00	:	24.400
Imported .....ton	29.00	:	33.00
Benzaldehyde tech. 945 lb drs wks lb	.65	:	.70
BENZENE			
Comm. 90% 8,000gal tks wks gal	.22	:	.23
Commercially pure tks wks gal	.22	:	.24
Drum lots 5c gal higher			
Benzidine Base, dry 250 lb bbls lb	.70	:	.74
Benzol, see Benzene			
Benzoyl Chloride 500 drs ....lb	...	:	1.00
Benzyl Acetate 100 lb cbys ....lb	1.30	:	1.40
Benzoate, bulk .....lb	1.15	:	1.35
Chloride 95% tech 925 lb drs lb	...	:	.25
100 lb cbys .....lb	.25	:	.30
BETA-NAPHTHOL 250 lb bbls wks lb	...	:	.24
c-1 .....lb	...	:	.22
Sublimed .....lb	.55	:	.60
Beta-Naphthylamine tech 200 lb			
bbls .....lb	.63	:	.67
Sublimed, 200 lb bbls ....lb	...	:	1.35
Blanc Fixe, dry 400 lb bbls wks ton	80.00	:	90.00
Imported, bbls .....ton	70.00	:	72.00
Paste, 650 lb bbls c-1 ton	45.00	:	55.00
BLEACHING POWDER, 700 lb drs			
c-1 wks contract .100 lb	...	:	2.00
c l spot wks ....100 lb	...	:	2.10
300 lb drs c-1 wks contract 100 lb	...	:	2.25
c-1 spot wks ....100 lb	...	:	2.35
1c-1 15c 100 lbs differential			
Blues, bronze Chinese, Milori			
Prussian Soluble .....lb	.30	:	.33
Blue Vitrol, see Copper Sulfate			
Bone Ash, 100 lb kegs .....lb	.06	:	.07
Black, 200 lb bbls .....lb	...	:	.03¼
Borax, crys., 500 lb bbls .....lb			04½
Powdered, 300 lb bbls .....lb	.04¼	:	.04½
Kgs 100-150 lb .....lb	.04¾	:	.05¼
Bordeaux Mixture, 16% pd ....lb	.11	:	.12
Paste, bbls .....lb	.08	:	.10
Bromide, see potass. bromide etc			
Butter of Antimony, see Antimony Chloride			
Butyl Acetate normal tk drs wks gal	1.42	:	1.45
Drums c-1 wks ....gal	1.44	:	1.47
Drums 1c-1 wks ....gal	1.47	:	1.50
Secondary 50 gal drums ..gal	1.00	:	1.05
Aldehyde 50gal drs wks lb	.70		
Propionate, drs .....lb	.34	:	.36
Stearate 50 gal drs .....lb	...	:	.60
Tartrate drs .....lb	.57	:	.60
CADMIUM, metal 100 lb bbls lb	.70		.75
CALCIUM Acetate 150 lb bgs c-1			
100 lb	...	:	3.50
Arsenate, 100 lb bbls c-1 wks lb	.07½	:	.08
Bromide, 100 lb cs .....lb	...	:	.60
Carbonate, tech 100 lb bags			
c l .....100 lb	1.00	:	1.10
USP, precip, 175 lb bbls ..lb	...	:	.06½
Chloride solid 350 lb drs c-l			
f. o. b. wks ....ton	21.00	:	23.00
Drums delvd. NY ..100 lb	1.74	:	1.89
Imp., Shipment .....ton	...	:	19.50
Flake, 375 lb drs c-1 drs f.o.b.			
wks .....ton	...	:	27.00
Drums delvd. NY 100 lb	2.04	:	2.19
Bags delvd. NY ..100 lb	2.04	:	2.19
Nitrate, 220 lb bbls c-1 NY ton	...	:	52.00

Chemicals

CALCIUM, Phos., tech 450 lb bbls	lb	.09	.10
Phosphate mono, 325 lb bbls	lb	.07	.08
Stearate, bbls	lb	.23	.25
Sulfocarbolate, 100 lb kegs	lb	.53	.57
CAMPHOR, Amer. ref. 250 lb bbls	lb	...	.72
2½ lb slabs, 100 lb cs	lb	...	.73½
Jap., ref slabs 100 lb cs	lb	.69	.70
Powdered	lb	...	.80
Crude, 100 lb cs	lb	.54	.56
Carbon Bisulfide 500 lb dr 1c-1 NY	lb	.05¼	.06
c-1 drums NY	lb	...	.05¼
Carbon Black, c-1 wks bags	lb	...	.09
100-300 lb cases 1c-1 NY	lb	...	.12
Decolorizing 40 lb bags c-1	lb	.08	.15
90 lb drums c-1	lb	.08¾	.15¾
Carbon Dioxide, Liquid 20-25 cy	lb	...	.06
Tetrachloride, 14000 lb drs del	lb	.07	.07½
Drums c-1 delivered	lb	...	.06¾
Casein, edib., 100 lb kegs	lb	.45	.65
Standard ground	lb	.18	.18½
Caustic Potash see potash, caustic			
Soda, see soda, caustic			
Cellulose Acetate, 50 lb kegs	lb	...	1.40
Cerium Oxalate USP, 100 lb kegs		.38	.35
Chalk, drop 175 lb bbls	lb	.03	.03¾
Precip., light 250 lb bbls csks	lb	...	.04½
Precip., heavy 560 lb csks	lb	.02¼	.03½
Bulk	ton	..	5.00
Precip. English 7 lb bags	lb	..	.08½
Precip., heavy 560 csks	lb	.03½	.03¾
Chinese Blue, See Blue			
Chloramine USP, 200 lb bbls	lb	..	1.75
Chlorocosane 5 lb bot	lb	.55	.65
Chlorhydrin, Ethylene See Ethylene			
CHLORINE, Liquid tank or multi-unit car wks contract	lb	..	.04
Tank car spot wks	lb	..	.04¾
Carlots cyl wks contract	lb	..	.05½
spot wks	lb	..	.05¾
lc-1 cyl wks contract	lb	.08	.09
Spot wks	lb	.08¼	.09¼
Chlorobenzene, mono, 100 lb drs. wks lc-1	lb	..	.07
CHLOROFORM, USP, 50 lb drs	lb	..	.30
Second hands 650 lb drs	lb	.27½	.28½
Technical 1,000 lb drums	lb	.20	.22
Chlorophyll Oil Sol.	lb	3.75	4.00
Water Sol.	lb.	3.75	4.00
Chromium Acetate 20° sol'n 400 lb bbls	lb	..	.05½
Fluoride, Powd., 400 lb bbls	lb	.27	.28
Oxide, Green bbls	lb	.34½	.35½
Chrome Green, CP	lb	.26	.29
Comm.	lb	.06½	.11
Chrome Yellow	lb	.16½	.17
Clay c-1 Bulk, Del.,	ton	16.00	18.00
Powdered 125 lb bags	ton	..	20.00
Coal Tar, See Tars			
Cobalt metal 100 lb kegs	lb	2.50	3.00
Cobalt Oxide 500 lb bbls	lb	2.00	2.10
10 lb tins 200 lb cases	lb	..	2.20
COPPER, metal electrolytic	100 lb	12.90	13.00
Lake c-1 NY	100 lb	13.00	13.12½
Carbonate 400 lb bbls	lb	.16¾	.17¼
Chloride 250 lb bbls	lb	..	.28
Cyanide 100 lb drs	lb	.48	.50
Oxide, red 100 lb bbls tons	lb	.16½	.17
Sub-acetate verd 440 lb bbls	lb	.18	.19
SULFATE crys 450 lb bbls	100 lb	5.05	5.25
Carlots, bbls wks	100 lb	...	4.95
Powd. 350 lb 5bbls	100 lb	...	5.25
Copperas bulk, crystal and sugar c-1 wks	ton	..	13.00
200 lb bgs c-1 wks	ton	..	15.00
400 lb bbls c-1 wks	ton	..	18.00
Powdered bbls	100lb.	1.90	2.00
Sugar, 100 lb bbls	100 lb	1.25	1.35
Cotton Soluble 100 lb wet	lb	.40	.42
CREAM TARTAR, USP, 300 lb bbls	lb	.25½	.25¾
Imp., powd., USP, 224 bbls	lb	.25¾	.26
Creosote USP 42 lb cbys	lb	.40	.42
Creosote Oil Natural 50gal drs	gal	.20	.21
10-15% Tar acid	gal	.25	.26
25-30% Tar Acid	gal	.28	.29
Cresol, USP, 400 lb drums	lb	.20	nom.
Cyclohexanol, see Hexalene			
Cymene, See Para-Cymene			
DIAMINOPHENOL, 100 lb kegs	lb	..	3.80
Diamyl Phthalate drums, wks	gal	2.95	2.97
Dianisidine, 100 lb kegs	lb	3.25	3.35
Dibutyl Phthalate wks	gal	2.60	2.70

Bordeaux Mixture — The buying season is still in its early stage but makers report a moderately good demand with prices satisfactory in all quarters.

Carbon Tetrachloride — Is routine at firm and unchanged prices.

Casein — Importers are openly quoting 18¼c@18½c lb. for standard ground casein and find conditions only fair as the majority of paper mills are operating on at 70% basis and are not drawing on contract commitments as they normally do.

Copper Sulfate — Continues to be a buying attraction to-day at $4.95 100 lbs. in carlots and less carlots extending from $5.05@$5.25 100 lbs. as to quantity.

Calcium Arsenate — The season has arrived and the market is lively with the price of .07½c lb. with large shipments in motion toward the cotton growing territories.

Chrome Yellow — With lead at a fairly fixed position, chrome yellow has been lowered ½c lb. and meets a fair reaction from buying interests, whose activity has been lacking for some time.

Cream of Tartar — Importers now quote a duty paid price of 28c lb. The necessity of this step is due to the poor crop of argols this season which has created an ascending market during the past few months. Domestic producers have also advanced their schedules in proportion and now 25½c to 25¾c lb. an advance of 1c lb. over previous quotations.

Diphenylamine — The market is steady but sales are not quite up to normal at the quoted level of 45c@47c lb.

Dibutyl Phthalate — Meets a fairly good volume of business at $2.60@$2.70 gallon.

Epsom Salts —Register no change in either price nor position.

Glycerin — The dynamite market has softened somewhat and business continues on a small scale. The open market is lower at 23c lb. but for quantity, this price would probably be fractionally lower. Production is said to be below normal and many small refiners are rapidly disposing of their production and are sold ahead for

Dibutyl Tartrate, 50gal drums	lb	.55	.65
Dichlorobenzene, 1,000 lb drums	lb	.06	.07
Dichloromethane drums, wks	lb	.23	.25
Diethylamine, 400 lb drs	lb	...	2.15
Diethylaniline, 850 lb drs	lb	.55	.60
Diethyl Carbonate, drums	gal	1.85	2.00
Diethyl Phthalate 1,000 drums	lb	.25	.28
Diethyl Sulfate tech., 50gal drs	lb	.20	.25
Dimethylamine, 400 lb drs	lb	...	2.60
Dimethylaniline 340 lb drs wks	lb	.32	.34
Dimethylsulfate, 100 lb drs	lb	.45	.50
Dinitrobenzene, 400 lb bbls	lb	.15½	.16½
Dinitrochlorobenzene, 400 lb bbls	lb	.15	.16
Dinitrochlorine, 300 lb bbls	lb	.18	.19
Dinitronaphthalene, 350 lb bbls	lb	.32	.34
Dinitrophenol, 350 lb bbls	lb	.31	.32
Dinitrotoluene, 300 lb bbls	lb	.18	.19
Diorthotolylguanidine, 275 lb bbls wks	lb	.85	.90
Diphenylamine	lb	.45	.47
Diphenylguanidine 100 lb bbls	lb	.68	.72
EPSOM SALT, tech., 300 lb bbls NY	100 lb	...	2.00
Bbls c-l NY	100 lb	...	1.75
100 lb c-l NY	100 lb	1.50	1.75
Imp., 20 lb bags c-l		1.05	1.10
USP, 200 lb bbls 10bbls Seaboard	100 lb	...	2.35
Interior	100 lb	...	2.50
Carlots, bbls kegs Seaboard	100 lb	1.90	2.15
Interior	100 lb	2.00	2.25
Imported, 400 lb bbls	100 lb	1.70	2.00
ETHER, USP, 55 lb drums	lb	...	.14
Ethyl Acetate, 99% 50gal drs	gal	...	1.10
85% 35% Ester 110gal drs			
10gal drs	gal	...	.90
Carlots drums	gal	...	.87
Tank cars	gal	...	.85
Refined drums	gal	1.72	1.85
Aceto Acetate drums wks	lb	...	1.00
Benzyl Aniline, 300 lb drs	lb	1.05	1.11
Bromide, 115 lb drs	lb	...	.50
Chloride, 200 lb drs	lb	...	.22
Lactate drums wks	gal	...	2.50
Methyl Ketone, 50gal drs	lb	.30	nom.
Oxalate drums wks	lb	.45	.55
Ethylene-Bromide 600 lb drs	lb	...	.70
Chlorhydrin, anhyd., 50gal drs	lb	.75	.85
40% Solution, 50gal bbls	lb	.25	.30
Dichloride, 50 gal drs.	lb	...	.11
Tank cars	lb	...	.06
Glycol 50gal drums wks	lb	.30	.40
Tri Chloride	lb	.10	.10½
Ethylidenaniline	lb	.62	.65
Feldspar bulk	ton	20.00	25.00
FERRIC CHLORIDE tech., crys. 475 lb bbls	lb	.07½	.09
Imported	lb	.04¾	.05
C.P., crys., 100 lb kegs	lb	...	.10
Imported	lb	.06	.06½
Neut. Soln. 42° 140 lb cbys	lb	.06¾	.07
46° 140 lb cbys	lb	.08	.08½
USP, Soln 125 lb cbys	lb	.06½	.07
Bromide solution	lb	...	.55
Ferrous Bromide sol'n	lb	...	.55
Chloride cryst tech 475 lb bbls	lb	.05	.06
Sulfide 1000 lb bbls	100 lb	2.50	3.00
Fiske-White see lead White			
Fluorspar, 95% 220 lb bags ex-dock	ton	...	25.00
96% bags	ton	...	33.50
98% bags	ton	...	35.00
FORMALDEHYDE USP, 400 lb bbls c-l wks	lb	...	.11¼
Bbls 400 lb lc-l wks	lb	.11½	.11¾
Formaldehyde Aniline 100 lb drs	lb	.39	.42
Furfural 500 lb drums	lb	...	.17½
Tanks, wks	lb	...	.15
Fusel Oil 10% Impurities drs	gal	...	1.60
G SALT paste 360 lb bbls basis 100%	lb	.50	.52
GLAUBER'S SALT, tech., 200 lb bags c-l wks	100 lb	1.05	1.10
lc-l wks	100 lb	1.15	1.20
350 lb bbls c-l wks	100 lb	...	1.10
Bbls lc-l wks	100 lb	1.25	1.35
Imported bags NY	lb	.75	.80
Calcined, see Sodium Sulfate			
GLYCERIN, CP, 550 lb drums	lb	.25½	.26
Dynamite, 100dr	lb	...	.24
Saponification tanks	lb	.18¼	.18½
Soap, Lye tanks	lb	.16¼	.16½

Chemicals

Hexalene, 50gal drs., wks	lb	...	.60
Hexamethylenetetramine drs	lb	.80	.82½
HYDROGEN PEROXIDE, 10 vol			
400 lb bbls	lb	.04½	.05
15vol	lb	.06	.06¼
17vol	lb	.06¼	.06½
25vol	lb	.06½	.06¾
100vol 140lb cbys	lb	.24	.26
IODINE, crude 200 lb kegs	lb	4.20	4.25
Iridium, metal, 10oz lots	oz	...	260.00
Iron, metal by hydrogen 1 lb bot	lb	.68	.70
IRON Chloride see Ferric or Ferrous			
Nitrate, kegs	lb	.09	.10
Com'l bbls	100 lb	2.50	3.25
Oxide, red Spanish	lb	.03½	.03¾
English	lb	.10	.12
Perchloride ,see Ferric Chloride			
Isopropyl Acetate 50gal drums	gal	.85	.90
Kaolin see Clay			
LANOLIN, see Adeps Lanae			
LEAD, metal c-l NY	100 lb	...	6.65
Acetate, white crystals	500 lb bbls wks 100 lb	13.00	13.50
100 to 200 lb kegs	100 lb	...	14.00
White, broken bbls wks	100 lb	13.50	14.00
White, gran bbls wks	100 lb	13.50	15.00
White, powd bbls wks	100 lb	13.75	14.25
Brown, broken bbls wks	100 lb	12.00	13.00
Arsenate, 100 lb kegs	lb		
Bbls., c-l wks	lb	...	.13
Bbls., lc-l wks	lb	.13½	.14
Paste, 100 & 600 lb bbls	lb	.08	.09
Nitrate, 500 lb bbls wks	lb	...	.14
Oxide, Litharge 500 lb bbls	lb	...	.09¼
100 kegs wks	lb	.14¼	.15¾
Oxide, red, 500 lb wks	lb	...	.10
100 lb kegs wks	lb	.12¾	.16¼
Oleate, bbls	lb	.17½	.18
Peroxide, 100 lb drs	lb	.25	.30
White, basic carb., 500 lb bbls wks	lb	...	.09¾
100 lb kegs wks	lb	.14¼	.15¾
White sulfate 500 lb bbls wks	lb	.09	.09½
LIME, (Salts, see Calcium Salts)			
Ground Stone, bags	ton	...	4.50
Live, bulk	ton	...	8.50
Live, 325 lb bbls tons wks 100 lb		...	1.65
Hydrated, 167 lb bbl ton lots wks	100 lb	...	.35
Single bbl wks	lb	...	.01
Oyster Shell 150 lb bbl sing	lb	...	.03½
Sulfur dry 200 lb drs NY	lb	...	.03½
Drs. c-l NY	lb	...	.07½
33° Sol'n 50 lb bbls NY	gal	.18	.15½
Litharge see lead oxide			
Lithium Carb., USP 100 lb kegs	lb	1.48	1.60
Bromide 100 lb cs	lb	1.80	1.90
Lithopone, 400 lb bbls lc-l wks	lb	...	.06½
Bbls., c-l wks	lb	...	.05¾
Bags c-l wks	lb	...	.05¾
Imported, 400 lb bbls	lb	.05¾	.06
MAGNESITE, calcined, 500bbls	ton	48.00	50.00
Magnesium mtl., sticks 100 lb cs			
Wks.	lb	...	.80
Carb., tech., 70 lb bags NY	lb	.06	.06½
75 lb bbls NY	lb	.08	.08½
USP, 100 lb bbls	lb	.09½	.10
English cs blocks	lb	.17	.19
MAGNESIUM, Chloride, flake 575 lb drs. c-l wks	ton	...	37.00
Imp., Flake Shipt.	ton	...	33.00
Imp., fused 900 lb bbls NY	ton	...	31.00
Fluosilicate cryst400 lb bbls wks	lb	.10	.10½
30% sol'n 500 lb bbls wks	lb	.07	.07½
Sol'n. bbls., c-l wks	lb	...	.06
Oxide, USP, light 100 lb bbls	lb	...	.42
USP, heavy 250 lb bbls	lb	...	.50
Salicylate, 100 lb kegs	lb	.75	.80
Stearate bbls	lb	.23	.25
Sulfate, see Epsom Salts			
Manganese Borate, 30% 200 lb bbls	lb	...	.24
100 lb kegs	lb	...	.25
Chloride, 600 lb csks	lb	.08	.08½
Dioxide, 80-84% 900 lb bbls NY	ton	80.00	85.00
85-90% 900 lb bbls NY	ton	85.00	90.00
Hydrated, precip 100 lb kegs	lb	.15	.23
Ore, bulk cif NY	lb	.35	.40
Sulfate, 550 lb drums NY	lb	.07	.07¼

some time. Seemingly, this condition has not affected the position of chemically pure which is unchanged at 25½c@26c lb. Crude saponification is lower at 17c lb. and lye is likewise the same at 15¼c lb.

Glaubers Salts —Are moving smoothly with stocks plentiful and prices unchanged.

Lead Acetate — Is quiet and not very promising at the new price of 13c lb. for white crystals in barrels.

Lead Red — As lead pigment is very stable at the moment, this derivative remains at the same plane. It is moving in fair sized quantities for this period and shows no indication of an immediate let-up.

Mercury — The market broke to $118.00 per flask on Wednesday morning. Stocks not in strong hands are said to be large and selling competition is exceedingly keen. The London market is none too firm and dropped one pound Sterling last week. There is a decided tendency toward still lower prices as many holders of spot material accumulated their holdings at prices well below the latest prices quoted. Demand is reported as excellent although buyers will doubtless be timid in a declining market.

Methanol — Following the announcement that pure methanol was available in synthetic form from domestic sources, at a figure 17c gallon below the existing schedule for the wood distillation product, some producers of the latter announced a reduction to meet it, while those who have not already done so are ready to fall in line. All formulae were affected with the exception of the U. S. denaturing grade which remains at the same level. Current prices for the pure acetone free, are; in tanks 68c gallon, drum cars 71c and less carlots in drums for synthetic 75c and natural 73c; for 95% material 44c in tanks, 66c gallon for drum cars and 68c gal. less carloads in drums; 97% is quoted at 66c gallon in tanks, 68c gallon in drum cars and 70c gal. for less than carloads in drums.

Para-Dichlorbenzene — Although it is now moving in fair volume and evidences a growing interest, factors expect a seasonal decrease in sales until the fall.

MERCURY, metal 75 lb flask	flask	121.00	123.50
Meta-Nitro-aniline	lb	.73	.74
Meta-Nitro-para-Toluidine, 200 lb bbls	lb	...	1.70
Meta - Phenylenediamine, 365 lb bbls	lb	.90	.94
Meta - Toluylenediamine, 300 lb bbls	lb	.72	.74
Tanks	lb	...	.70
METHANOL (Wood Alcohol) drms. 95%	gal	...	.80
Drums, c-l	gal	...	.83
Drums, lc-l	gal	...	.85
97% tanks	gal	...	.82
Drums, c-l	gal	...	.85
Drums, lc-l	gal	...	.87
Tanks		...	.68
Synthetic drums c-l		...	.71
Drums l-c-l		...	.75
Pure, Acetone free, tanks	gal	...	.85
Drums, c-l	gal	...	.88
Drums, lc-l	gal	...	.90
U. S. denat., grd., tanks	gal	...	.80
Drums, c-l	gal	...	.83
Methyl Acetate drums	gal	...	.95
Methyl Acetone, 100gal drums	gal	.88	.90
Tank cars	gal	...	.85
Chloride, 90 lb cyl	gal	.55	.60
Monobromobenzene See Bromobenzene			
Monacetine, See Acetine			
Monochlorobenzene, see Chlorobenzene			
Monethylaniline, 900 lb drs	lb	...	1.05
Monomethyl paraminophenol sulfate 100 lb drs	lb	3.95	4.20
NAPHTHA, see Solvent Naphtha			
NAPHTHALENE, Flake, 175 lb bbls wks	lb	.05	.05½
Balls, 250 lb wks	lb	.06	.06½
Crushed, chipped bgs wks	lb	...	.04¾
Crude, Imp., bags	lb	.02	.02¼
NICKEL, Ingot 100 lb kegs			.35
Chloride, bbls kegs	lb	.21	.24
Oxide, 100 lb kegs NY	lb	.35	.38
Salt single 400 lb bbls NY	lb	.08	.08½
Double 400 lb bbls NY	lb	.08¼	.09
Sulfate, See Nickel Salt single			
Nickel Metal, electrolytic 100 lb		...	84.00
Nicotine, Free,40% 8 lb tins cs	lb	1.25	1.30
Nicotine Sulfate 10 lb tins	lb	...	1.10
NITRATE SODA, spot, See Sodium Nitrate			
Nitre Cake, bulk wks	ton	4.50	5.50
500 lb bbls	ton	13.00	14.00
Nitrobenzene, Redistilled 1000 lb drs, wks	lb	.09¼	.10¼
Nitronaphthalene, 550 lb bbls	lb	...	.25
Nitrotoluene, mixed 1,000 lb drs wks	lb	.14	.15
Oil Fusel, See Fusel Oil			
Oil Mirbane, see nitrobenzene			
Orange-Mineral, 1100 lb sks NY	lb	...	.13¼
700 lb bbls NY	lb	...	.13½
Ortho-Aminophenol, 50 lb kegs	lb	2.20	2.25
Ortho-Anisidine, 100 lb drs	lb	2.35	2.50
Ortho-Dichlorbenzene, see Dichlorbenzene			
Ortho-Nitrochlorobenzene, 1,200 lb drs, wks	lb	.32	.35
Ortho-Nitrophenol, 350 lb	lb	.85	.90
Ortho-Nitrotoluene, 1,000 lb drs wks	lb	.13	.14
Ortho-Toluidine l c l 350 lb bbls	lb	.25	.27
PALLADIUM, metal 10oz lots	oz.	80.00	81.00
Para-Aminoacetanilid, 100 lb kgs	lb	1.00	1.05
Para-Aminophenol, 100 lb kegs	lb	...	1.15
Hydrochloride, 100 lb kegs	lb	1.25	1.30
Para-Dichlorbenzene, 150 lb bbls wks	lb	.17	.20
25-50 lb kegs	lb	.20	.21
Paraldehyde 10-55gal drs USP tech	lb	.28	.28
Para-Cymene Ref'd. 110gal drs.	gal	2.25	2.50
Paraformaldehyde USP 100 lb cs	lb	.53	.53½
Para-Nitroacetanilid, 300 lb bbls	lb	.50	.55
Para-Nitroacetanilid 300 lb bbls	lb	.50	.55
PARA-NITROANILINE, 300 lb bbls wks single bbls	lb	.52	.53
Para-Nitrochlorobenzene, 1,200 lb drs wks	lb	...	.32
Para-Nitro-ortho Toluidine, 300 lb bbls	lb	2.75	2.85
Para-Nitrophenol, 185 lb bbls	lb	.50	.55
Para-Nitrosodimethylaniline, 120 lb bbls	lb	.92	.94
Para-Nitrotoluene, 350 lb bbls	lb	.35	.36
Para-Phenetidin, 500 lb drs	lb	1.55	1.80

Para-Phenylenediamine
Sal Soda

Chemicals

Salt Common
Sodium Oxalate

Para-Phenylenediamine 350 lb bbls lb	...	:	1.20
Para - Toluene-Sulfonamide, 175 lb bbls lb	.40	:	.41
Para - Toluene-Sulfonchloride, 410 lb bbls wks lb	.20	:	.22
Para-Toluidine, 350 lb bbls wks. lb	.38	:	.42
PARIS GREEN,			
Arsenic Basis, 500 lb kegs lb	.19	:	.20
Kegs, 100 lbs lb	.21	:	.22
Paris White, see Whiting French			
PETROLATUM, green 300 lb bbls lb	.02½	:	.03
Dark Amber, 300 lb bbls lb	...	:	.04¼
Light Amber, 300 lb bbls lb	...	:	.04½
Phenol, see also acid carbolic 950 lb drums wks lb	.16	:	.17
Small drums 250-100 lb lb.	.17	:	.18
Natural 240 lb dcs drs wks lb	...	:	...
Phenyl-Alpha-Naphthylamine 100 lb kegs lb	...	:	1.35
Phosphorus, red 110 lb cs lb	.60	:	.65
Yellow 110 lb cs wks lb	...	:	.32
Imported, 110 lb cs wks lb.	.35	:	.37½
PhosphorousOxychloride 175 lb cyl lb	.35	:	.40
Phosphorous Sesquisulfide 100 lb cases lb	...	:	.46
Phthalic, Anhydride, 100 lb bbls wks l lb	.18	:	.20
Pitch, Coal-Tar wks ton	24.00	:	26.00
Plaster Paris, tech 250 lb bbls bbl	...	:	3.30
Platinum metal soft, 10oz lots oz	95.00	:	97.00
Potash, Caustic, Imp., c-l, cks lb	...	:	.07½
Domestic, wks lb	...	:	.07⅛
POTASH SALTS, rough			
Pot. Muriate basis 80% bgs ton	...	:	36.40
Pot. Sulfate, basis 90% bgs ton	...	:	47.30
Pot. & Mag. Sulfate basis 48% bags ton	...	:	27.60
Manure Salts basis 30% bulk ton	...	:	18.75
Manure Salts basis 20% bulk ton	...	:	12.40
Kainit, basis, 12.4% bulk ton	...	:	9.00
Kainit, basis, 14% bulk ton	...	:	9.50
tons 10% Bulk in bags $2.00 extra Prices cif. Atlantic&Gulf Ports			
POTASSIUM Acetate, USP, 100 lb kegs lb	.29	:	.30
Bicarbonate USP 320 lb bbls. lb	.09	:	.09½
Bichromate, crys., 725 lb casks lb	.08¼	:	.08⅜
Powd., 725 casks wks lb	.12	:	.12½
Binoxalate, 300 lb bbls lb	.16	:	.17
Import, 112 lb bbls lb	.18	:	.19
Bisulfate, 100 lb kegs lb.	...	:	.30
BROMIDE, USP, cryst, gran, 100 lb bbls lb	.48	:	.49
Imported, USP, 220 lb cs lb	.38	:	.41
CARBONATE, 80-85% calc. 800 lb cks lb	.05⅝	:	.05¾
80-85% hydrated cks lb	.05⅝	:	.05½
90-95 calc. casks lb	.06¼	:	.06½
96-98% calc, casks lb	.06¾	:	.07
99% calc casks lb	...	:	.07½
USP 100 lb kegs lb	.11	:	.11½
99% CP, casks lb	...	:	.12½
Chlorate cryst powd 112 lb kegs wks lb	.08½	:	.09
Imp., 112 lb NY lb	.08¼	:	.08½
Gran. Imp., 112 lb kegs NY lb	.10½	:	.11
Chloride, crys., bbls lb	.05⅝	:	.05½
Chromate, kegs lb	.27	:	.28
Citrate, USP, 50 lb lb	...	:	.60
Cyanide 110 lb cases lb	.55	:	.57½
Metabisulfite, 300 lb bbls lb	.11½	:	.12
Imp., 550 lb bbls lb	.11½	:	.12
Nitrate, see Saltpetre			
Oxalate, neutral, 225 lb bbls lb	.16	:	.17
Pyridine, 50gal drs gal	1.00	:	1.25
PERMANGAN, USP, crys., 500 lb & 100 lb drs wks lb	.14¼	:	.14½
Imp., 113 lb drs lb	.13½	:	.14
Prussiate red, 112 lb kegs lb	.37½	:	.38
Prussiate, yellow 500 lb casks lb	.18	:	.18½
Tartrate, neutral 100 lb kegs lb	...	:	.51
Titanium Oxalate, 200 lb bbls lb	...	:	.25
Pyridine, 50 gal drs. gal	2.25	:	2.30
QUICKSILVER, see Mercury			
Quinone, 100 lb kegs lb	1.75	:	2.25
R SALT, 250 bbls wks lb	.45	:	.46
Red Lead, See Lead Oxide			
Rochelle Salt, USP, 225 lb bbls lb	.20	:	.20½
Imp., USP, 300 lb bbls lb	.19	:	.19⅛
Sal Ammoniac, see Ammon. Chloride			
Sal Soda, see Sodium Carbonate			

Phenol — The price of 16c lb. evidently is an attractive one, for many consumers are contracting for their requirements extending over next year.

Potash Salts —There is an acute shortage of spot stocks of potassium muriate but the season is practically over and the light demand offsets this scarcity. Prices remain the same with the exception that the 8% discount allowed on orders placed before June 5th, terminated, whence a 7% discount was effective.

Sodium Nitrate — Latest quotations are $2.65 100 lbs. for spot delivery and $2.25 100 lbs. for July shipment, with a light demand for both. With the advancement of the Chilean market, importers are experiencing no trouble in maintaining the present prices and as there is very little material being exported from Chili and very little available on spot, the future price trend is entirely dependent upon the demand.

Solvent Naphtha — Recovery from its present weak position is not expected for some time to come. The few inquiries received are met at 35c gallon.

Toluene — Remains at an exceedingly strong station at the basic price of 35c in tank cars f. o. b. works.

Vermilion — An announcement of advance in price of English material was made and the demand has fallen off considerably. This advance is laid responsible to the present tone of quicksilver and the weakening position of this market might possibly effect a recession from the prevailing scale of $1.90 @$1.95.

OILS AND FATS

Castor Oil —Offered by makers at unchanged levels. Sales continue in fair volume this week on the basis of 13½c@14½c lb. for No. 1 and 13c lb. for No. 3.

Chinawood Oil — Following the firmer tendency of last week the market both on spot and the Coast is higher. Though little actual business is being done the market is firm and being watched with interest by consumers. Spot oil in barrels is quoted this week at 20c@ 20½c lb. with tanks on the Coast

Salt, Common, see Sodium Chloride			
Salt Cake 94-96% c-l wks ton	19.00	:	20.00
White 87% wks ton	15.00	:	17.00
SALTPETRE, Double refined Granular, 450-500 lb bbls lb	.06½	:	.06¼
c-l wks lb	...	:	.06
Powdered, bbls c-l wks lb	...	:	.07¼
Large Crystals, bbls c-l wks lb	...	:	.08
Triple Refined Gran bbls wks lb	.06⅝	:	.06¾
Satin White, 500 lb bbls lb	...	:	.01½
SILICA Crude, bulk, mines ton	6.00	:	7.00
Refined, floated bags ton	15.00	:	30.00
Air floated bags ton	32.00	:	50.00
Extra, floated, bags ton	55.00	:	65.00
SILVER metal American oz. oz	...	:	.56¼
SODA ASH, 58% light bags delivered NY 100 lbs	2.14	:	2.29
bbls., delvd. NY 100 lb	2.39	:	2.54
Contract, c-l,bgs,wks. 100 lb	...	:	1.32½
58% dense c-l bgs.wks. 100 lb	...	:	1.32½
Spot 5c 100 lbs differential			
CAUSTIC, 76% solid drums delv'd NY 100 lb	3.76	:	3.91
Ground & Flake 76% drums del., NY. 100 lb	4.16	:	4.31
bbls del. 100 lb	4.41	:	4.56
Contract c-l wks 100 lb	...	:	3.00
Spot c-l wks 100 lb	...	:	3.10
Ground & Flake, 76%, Spot, wks c-l 100 lb	...	:	3.50
USP, stick, 10 lb cans lb	.19	:	.21
Pure, stick, by alcohol lb	.25	:	.27
Soda Sal. see Sodium Carbonate			
Sodium Metal, 12½ lb bricks lb	...	:	.27
SODIUM ACETATE, crys 450 lb bbls wks lb	.04½	:	.05
Aluminate, 500 lb bbls wks lb	.07¼	:	.08
Aluminum Sulfate, see Alum Soda			
Arsenate, 4 lb mtl. wks drms gal	.50	:	.60
Drums, 8 lb material wks gal	1.00	:	1.20
Bicarbonate 400 lb bbls NY 100 lb	...	:	2.41
Bbls c-l wks 100 lb	...	:	2.00
112 lb kegs c-l wks 100 lb	...	:	2.25
112 lb kegs c-l wks 100 lb	...	:	2.25
Bichromate, 500 lb casks wks lb	.06¼	:	.06¾
Bisulfite, dry powder 500 lb bbls wks lb	...	:	.08½
Imported lb	...	:	.08
BROMIDE, USP, 100 lb cs. lb	.48	:	.49
Imp. USP., 220 lb cases lb	.44½	:	.45
Carbonate 350 lb bbls NY 100 lb	1.30	:	1.35
Works c-l 100 lb	1.10	:	1.30
Monohydrate, 400 lb bbl 100 lb	...	:	2.40
Pure photographic 100 lb Imported, 112 lb kegs lb	.06¼	:	.06½
Chloride, tech ton	12.00	:	13.00
CP, 300 lb bbls lb	.05	:	.06
Chlorate, 112 lb kegs wks. lb	.06½	:	.06¾
kegs lb	.07	:	.08
Chromate, 800 lb bbl lb	...	:	.08
Cyanide 96-98% 100 & 250 lb drums wks lb	...	:	.20
c-l wks lb	...	:	.19
Imp., 95-97% 100 lb drs lb	.18	:	.19
Fluoride, 300 lb bbls wks lb	08¾	:	.09
Imp., 700 lb cks lb	09	:	.10
Hydroxide, see Soda Caustic			
Hypochlorite Soln 100 lb cbys lb	...	:	.05
14½ soln 50 lb cbys lb	...	:	.04
Hydrosulfite 200 lb bbls fobwks lb	.22	:	.24
HYPOSULFITE, tech., pea crys 375 lb bbls., wks 100 lb	2.65	:	3.05
Bbls., c-l wks 100 lb	...	:	2.50
100 lb kegs wks 100 lb	2.80	:	2.90
Imp. 100 lb	2.75	:	3.00
Regular crys., bbls wks 100 lb	2.40	:	2.65
Bbls., c-l wks 100 lb	2.40	:	2.50
Kegs, wks 100 lb	2.35	:	2.45
Imp. 100 lb	2.35	:	2.45
Metanilate, 150 lb bbls lb	.70	:	.75
Molybdate, 100 lb kegs lb	...	:	1.10
Naphthionate, 300 lb bbls lb	.55	:	.57
Nitrate crude, 95% 200 lb bgs c-l NY 100 lb	...	:	2.60
July Shipment 100 lb	...	:	2.25
Double Refined 400 lb bbls Gran c-l wks lb	...	:	.03¾
Nitrite, 500 lb bbls spot wks lb	.08	:	.08¼
Imp., 650 lb casks lb	.08½	:	.08¾
Ortho - Chloro - Toluene Sulfonate 175 lb bbls wks lb	.25	:	.27
Oxalate, neutral, 100 lb kegs lb	.20	:	.23

Sodium Perborate
Tin Tetrachloride

Chemicals

Titanium Oxide
Degras

SODIUM (Continued)			
Perborate, 275 lb bbls	lb	.21	.22
Peroxide, 200 lb cases	lb	.23½	.24
Phosphate, di-sodium tech 550 lb bbls	100 lb	3.25	3.55
Imp	100 lb	...	3.25
Mono-sodium 100 lb kegs	lb	.30	.31
Tri-sodium tech c-l bbls 100 lb		...	3.90
Picramate, 100 lb kegs	lb	...	.69
Para-Toluene Sulfonate 175 lb bbls	lb	.08	.09
PRUSSIATE, yellow 350 lb bbls wks	lb	.12	.12⅜
Imp., 50 lb cks	lb	.10½	.11
Pyrophosphate, 100 lb kegs	lb	.13½	.14
Salicylate, 100 lb kegs	lb	.37	.38
Silicate, 40° turbid, tanks wks	100 lb	...	.75
55gal drums wks	100 lb	.85	1.10
40° clear, tanks wks	100 lb	...	1.10
55gal. drs wks	100 lb	1.20	1.45
42° turbid tks., wks	100 lb	...	.80
55gal drs wks	100 lb	.90	1.15
42° clear, tanks wks 100 lb		...	1.25
55gal drs., wks	100 lb	1.35	1.75
Silicofluoride, 450 lb bbls NY	lb	.04½	.05
Stannate, 100 lb drums	lb	.48½	.49
Sulfanilate 400 lb bbls	lb	...	.16
Sulphate, see Glauber's Salt			
Sulfate, Anhydrous 550 lb bbls c-l wks	lb	.02¾	.02¾
Imp., 250 lb bbls	lb	.01¾	.02
Sulfide, 60% solid, 650 lb drs le-l wks	lb	.03¼	.04
Drs., c-l wks	lb	...	.03½
Imp., 700 lb drs NY	lb	.03	.03½
60% brkn. 650 lb drs wks	lb	.04	.04¼
Drs., c-l wks	lb	...	.03¾
30% crys 440 lb bbls wks	lb	.02½	.02¾
Imp., 400 lb bbls	lb	.02¼	.02½
Sulfite, cryst 400 lb bbls wks	lb	.03¾	.03⅞
Anhydrous USP, 100 lb kgs	lb	.08½	.09
Sulfocarbolate USP 100 lb kgs	lb	.32	.34
Sulfocyanide, 400 lb bbls	lb	.40	.45
Tungstate, cryst., 100 lb kegs	lb	.80	.82½
SOLVENT NAPHTHA, 110gal drs wks	gal	...	.40
8,000gal tank cars wks	gal	...	.35
STRONTIUM, Bromide,, USP, 50 lb kegs	lb	.51	.52
Carbonate, 600 lb bbls wks	lb	.07¼	.07½
100 lb kgs wks	lb	...	.08
Nitrate, 600 lb bbls NY	lb	.08	.08½
SULFUR Crude, fob mines	ton	18.00	19.00
Brimstone Broken Rock 250 lb bgs c-l	100 lb	...	2.05
Less c-l bbls NY	100lbs	2.35	2.55
Roll, 150 lb bgs c-l NY 100 lb		...	2.25
Less c-l bbls NY	100 lb	2.65	2.85
Flour, Heavy bgs c-l	100 lb	...	2.50
Light, 100% bags c-l 100 lb		...	2.60
Rubbermakers 100% 240 lb bbls, c-l bags NY 100 lb		...	2.60
Comm'l 99% c-l 150 lb bgs NY	100 lb	...	1.45
For Dusting c-l 99½% 100 lb bags NY	100 lb	...	2.40
Flowers 100% 155 lb bbls NY c-l	100 lb	...	3.45
Precipitated 125 lb bbls NY	lb	...	.17
Lac., 125 lb bbls NY	lb	...	.12
Sulfur Chloride, red, 700 lb drs wks	lb	.05	.05½
150 lb cbys wks	lb	...	.06½
Yellow, 700 lb drs wks	lb	.03¾	.04¼
Sulfur Dioxide, 150 lb cyl	lb	.08	.08½
Extra Dry, 100 lb cyl	lb	.17	.19
Sulfuryl Chloride, 600 lb drs	lb	.65	.70
Tar Coke Oven, Tks., wks	gal	.07	.08
Water Gas, Tks., wks	gal	...	08
Terra Alba No 1 300 lb bbls 100 lb		1.85	1.90
Tetralene, 50gal drs wks	lb	...	.20
Thiocarbanilid, 170 lb bbls	lb	.22	.24
TIN, metal Strait, NY	lb	...	.67½
99% American NY	lb	...	.68
Bichloride, 50% sol'n. 100 lb bbls wks	lb	...	.20
Crystals, 500 lb bbls wks	lb	...	.47½
100 lb kegs wks	lb	...	.48½
Oxide, 300 lb bbls wks	lb	...	.70
100 lb kegs wks	lb	...	.72
Recovered bbls	lb	...	.68
Tetrachloride, 100 lb drs wks	lb	...	.40½

and to arrive at 17¾c@18c lb. It is said that there are good sized stocks of oil in Hongkong which will be offered at better prices when the situation there adjusts itself.

Cod Oil — Importers here are asking 63c@64c gal. for oil in barrels on a fairly active market.

Cottonseed Oil — An easy tendency in both PSY and crude oil is noted on the market here at the opening this week. Spot barrels of refined oil are named at 9.05c lb. which represents a decline of 5 points for the week. The market is posted as easy. Sales have been of average volume during the period under report. Crude oil is none too strong though the price is unchanged at 8c lb. for Valley and Southeast and 7⅞c lb. for Texas.

Greases — Choice white is off this week with producers offering at 7¾c lb. on a quiet market. Yellow and brown are about the same as last reported at 6⅝c lb. here.

Lard Oil — Prime and off prime are holding up well on a generally quiet market, but an easiness is noted in other grades with quotations as follows: edible prime, 15c lb.; off prime, 13¼c lb.; extra, 12c lb.; extra No. 1, 11½c lb.; No. 1, 10½c lb. and No. 2, 10¼c lb.

Linseed Oil — Holds its firm position on spot, although the consuming interest has slackened a bit. Reflecting the position of the Argentine seed market which is off several points at this writing the undertone of spot linseed is possibly a bit easier but crushers are holding to their quotations of 11.3c lb. for carlots in barrels and 11.9c for 5 bbl. lots.

Neatsfoot Oil —On a market which is characterized as quiet the prices on all grades are holding to previously quoted levels. Producers quote as follows this week: 20° and CP at 17¾c lb.; pure, 13½c lb.; extra at 11½c lb. and No. 1 at 10½c lb.

Oleo Oil — Prices have been on upward trend for the past month, though at the moment the market is unchanged since last week and quiet at 13½c lb. for No. 1; 12¼c lb. for No. 2 and 11¼c lb. for No. 3.

Olive Oil — The spot market is marking time with importers and consumers unwilling to make con-

Titanium Oxide 200 lb bbls.	lb		.40
Pigment, bbls wks	lb	.13½	.14
Toluidine, 350 lb bbls	lb	.90	.94
Toluene, 8,000gal tnk cars wks	gal	...	.35
110gal drs wks	gal	...	.40
Toluidine, Mixed, 900 lb drs wks	lb	.31	.32
Toner Lithol Red bbls	lb	.85	.90
Para Red bbls	lb	.75	.80
Toluidine	lb	1.75	1.80
Triacetin, 50gal drs wks	gal	3.60	3.90
Tribromphenol, 100 lb cases	lb	...	1.10
Triphenylguanidine	lb	.69	.73
Tripbenyl Phosphate, 450 lb bbls	lb	...	.75
Tungsten, NY WO	unit	11.75	13.00
Ultramarine Blue	lb	.15	.25
Urea Pure, 112 lb cases	lb	.18	.20
Venetian Red	lb	...	.60
Vermilion Amer., 100 lb bags	lb	...	1.85
English kegs	lb	1.90	1.95
WHITE LEAD, see lead, white			
XYLENE, 3° 8,000 gal. tanks wks NY	gal	...	.55
5° tanks wks	gal	...	.45
10° tanks wks	gal	...	.38
Com'l tanks wks	gal	...	.36
Drum lots 5c gal higher			
Xylidine crude	lb	...	.35
Refined	lb	.38	.40
ZINC METAL, high grade slabs c-l NY	100 lb	...	6.50
Ammonium Chloride, powd 400 lb bbls	lb	...	.06¼
Carb., tech., bbls NY	lb	.09½	.10
USP, 100 lb kegs	lb	...	.20
Chloride, fused 600 lb drs wks	lb	...	.06
Drs., c-l wks	lb	...	.05¾
Granulated, 500 lb bbls wks	lb	.06¼	.06½
Imported, dr NY	lb	.06¼	.06¾
Solution 50% tnks wks 100 lb		...	3.00
Cyanide, 100 lb drs	lb	.40	.41
Dust, 100 lb tins wks	lb	...	.10
500 lb bbls kegs c-l wks	lb	...	.09
Oxide, Amer., bags wks	lb	.07¾	.7¾
Amer., 300 lb bbls wks	lb	.07¾	.07¾
French, 300 lb bbls wks	lb	.12¾	.12¾
Bbl c-l wks	lb	.12¾	.12¾
Bags c-l wks	lb	.12½	.12½
USP, 100 lb bbls c-l	lb	...	.14
10-25 bbl lots	lb	...	.15
5bbl lots	lb	...	.16
1bbl lots	lb	...	.17
Imported, white seal, bbls	lb	.12	.13½
Green seal, bbls	lb	.11½	.12
Red seal bbls	lb	.10½	.11
Stearate, USP, 50 lb bbls	lb	.20	.21
Sulfate, 400 lb bbls wks	lb	.03½	.03¾
Bbls c-l wks	lb	...	.03¼
USP, 100 lb bbls	lb	.08	.09
Sulfide, 500 lb bbls	lb	.30	.32
Sulfocarbolate, 100 lb kegs	lb	.29	.30

Oils & Fats

Castor, No. 1, 400 lb bbls	lb	.13½	.14
80 lb cases	lb	.14½	.15
No. 3	lb	.13	.14
Blown, 400 lb bbls	lb	...	.18
China Wood bbls spot NY	lb	.20	20½
Tanks, Spot NY	lb	...	nom.
Coast tanks—June	lb	.17¾	.18
Coconut Ceylon 375 lb bbls NY	lb	.09½	.09¾
8,000 gal tanks NY	lb	.08⅝	.08¾
Cochin, 375 lb bbls NY	lb	.10	10¼
Tanks, NY	lb	...	.09¼
Manila bbls NY	lb	.09½	.09¾
Tanks NY	lb	.08⅝	.08¾
Tanks Pacific Coast	lb	.08⅛	.08¼
Edible bbls NY	lb	.12	.12½
Cod Newfoundland, 50gal bbls	gal	.63	.64
Tanks, NY	gal	.59	.61
Cod Liver, see Cod Liver Oil under Chemicals			
Copra, bags	lb	.06	.06¼
Corn, ref. 375 lb bbls NY	lb	.12½	.13
Tanks	lb	.11¼	12
Crude tanks mills	lb	.07½	.08
Bbbls NY	lb	.09⅝	.10
Cottonseed Crude mill		.07⅞	.08
PSY 100 bbls spot lb.		...	.095
July-Oct.		.09¼	.09¾
White, 100 bbls lots NY	lb	...	.11½
Degras, Amer., 50gal bbls NY	lb	.04¼	.04½
English, light bbls NY	lb	.05¼	.05½
Brown, bbls NY	lb	.04⅝	.04⅞

Degras
Turkey Red Oil

Oils & Fats

Albumen, Egg Edible
Glue

Degras, Eng.,light brn,bbls,NY.. lb	.04½	:	.04¾
Light brown bbls NY lb	.04½	:	.04¾
Dark, bbls NY ..... lb	.03½	:	.04
Neutral, bbls NY ..... lb	.07½	:	.12
Moellon, bbls., NY ..... gal	...	:	.50
Greases choice white bbls NY.. lb.	...	:	.07⅜
Yellow ..... lb	...	:	.06⅝
Brown ..... lb	...	:	.06⅝
Herring, Tanks, Coast ..... gal	nom.	:	nom.
Horse, 375 lb bbls NY ..... lb	.10	:	nom
Lard, prime steam bbls ..... lb.	.13⅜	:	.13¾
Compounds, bbls ..... lb	.11¼	:	.12
LARD OIL, edible prime..... lb.	...	:	**.15**
Off prime bbls ..... lb	...	:	**.13¼**
Extra bbls ..... lb	...	:	.12
Extra, No. 1 bbls ..... lb	...	:	.11½
No. 1 bbls ..... lb	...	:	.10½
No. 2 bbls ..... lb	...	:	**.10¼**
LINSEED, raw c-l bbls spot .. lb	...	:	11.3
Five bbls raw .... lb	...	:	11.9
Tanks, raw ..... lb	...	:	10.5
Bld., 5 bbl lot wks... lb	...	:	12.5
Bbl boiled 5 bbl .... lb	...	:	11.8
June-July c-l wks	...	:	11.3
Menhaden, crude tanks Balt .. gal	...	:	.47½
Light pressed, bbls NY..... gal	.66	:	.68
Yellow pressed, bbls NY..... gal	.69	:	.70
Extra bleached bbls NY ..... gal	.70	:	.72
Blown bbls NY ..... lb	...	:	.10
Mineral Oil, white, 50gal bbls gal	.80	:	.90
Russian gal ..... gal	.95	:	1.00
Neat'sfoot 20° ct., bbls NY .. lb	...	:	.17¾
Pure bbls NY ..... lb	...	:	.13¼
CP bbls NY ..... lb	...	:	.17¾
Extrax bbls NY ..... lb	...	:	.11½
No. 1 bbls NY ..... lb	...	:	.10½
Oleo Oil, No. 1 bbls NY ..... lb	...	:	.13½
No. 2 bbls NY ..... lb	...	:	.12¼
No. 3 bbls NY ..... lb	...	:	.11¼
OLIVE, denatured bbls NY ..... gal	1.68	:	1.75
Edible, bbls NY..... gal	...	:	**2.15**
Foots bbls NY ..... lb.	.09¼	:	.09¼
Shipments ..... lb	.09⅛	:	.09¼
Palm Lagos, 1,500 lb casks..... lb	.08¼	:	.08½
Niger casks ..... lb	.07½	:	.07¾
Bonny Old Calabar casks lb	...	:	nom.
Palm Kernel bbl NY..... lb	.09½	:	.09¾
Casks . ..... lb	.09	:	.09⅛
Peanut refined bbls NY..... lb	.15½	:	.16
Crude, mills buyers' tks ..... lb	.10	:	.10¼
Crude, bbls NY ..... lb	.12	:	.12¼
Perilla, bbls NY ..... lb	.15½	:	.16
Tanks, Coast ..... lb	.14	:	.14½
Poppyseed, bbls NY..... gal	1.70	:	1.75
Rapeseed bbls NY Japanese .... gal	.80	:	.82
English ..... gal	.88	:	.90
Blown bbls NY ..... gal	1.00	:	1.02
Red Oil, distilled bbls ..... lb	.09		**.09½**
Tanks ..... lb	...	:	**.08¼**
Saponified, bbls ..... lb	.09½	:	**.10½**
Tanks ..... lb	...	:	**.08½**
Salmon, 8,000 gal tks Coast.... gal	.50	:	nom.
Sardine, Tanks Pacific Coast.. gal	...	:	.45
Sesame edible yellow bbls..... lb	.12¾	:	.13½
White ..... lb	.14	:	.15
Sod Oil, bbls NY ..... gal	...	:	.40
SOYA BEAN, crude tks Pac Cst. lb	.09⅝	:	**.09½**
Crude, tks NY ..... lb	.10¼	:	**.10½**
Crude, bbls., NY ..... lb	.12	:	**.12¼**
Refined bbls NY ..... lb	...	:	**.13**
Sperm. 38° ct., blchd. bbls NY gal	.85	:	.86
45° cold test blchd bbls NY gal	.82	:	.84
STEARIC ACID,			
Double pressed, bags dist. ... lb	.11¼	:	**.11½**
Double pressed, bgs saponified lb	.11½	:	**.12**
Carlots ..... lb	...	:	**.11**
Triple pressed bgs dist ..... lb	.13¼		**.13½**
Carlots ..... lb	...	:	**.13**
Stearine Oleo bbls ..... lb	.09¼	:	**.09½**
Tallow edible tierces ..... lb	...	:	.08¼
City, Extra loose ..... lb	...	:	.07¾
Tallow Oil, acidless tks NY ... lb	...	:	.10¾
Bbls c-l NY ..... lb	...	:	.11¼
Whale, nat winter bbls NY .... gal	.76	:	**.78**
Blchd, winter bbls NY ..... gal	.78	:	**.80**
Extra blchd bbls NY ..... gal	.80	:	**.82**
Yolk Oil, bbls ..... lb			
Turkey Red, Oil, single bbls .. lb	.11	:	**.12**
Double ..... lb	.14	:	**.16**

cessions to each other except in isolated cases when business is being done on denatured oil at $1.68 @$.175 gal. for spot oil. Foots are in some better demand at 9⅛c@ 9¼c lb. on spot but the interest could not be called good.

Perilla Oil — The active demand for perilla has subsided and the market is lower on spot at 15½c@ 15¾c lb. in barrels with oil on the Coast quoted at 14c lb. With Chinawood oil approaching reasonable levels the price for perilla will probably decline accordingly.

Rapeseed Oil — Has not changed since last reported with offers heard at 80c@82c gal. for Japanese, 88c@90c gal. for English and $1.00 @$1.03 gal. for blown.

Red Oil — Moving at average rate with makers maintaining the openly quoted price.

Sesame Oil — White oil is still unobtainable either here or abroad with Yellow in small supply on spot and firm at 13c@13¼c lb.

Stearine Oleo —Quiet on spot with but routine interest. Prices are well maintained at 9½c lb.

INDUSTRIAL RAW MATERIALS

Albumen—With a sizeable amount being entered, considering the conditions in China, importers are hampered by the irregularity of shipments. On the other hand a lack of demand offsets this handicap. Vegetable albumen remains unchanged on either technical or edible, although for the present only the edible is being made, due to a heavy demand both for domestic and export use. The production of technical will in all probability be resumed during the summer months.

Bees Wax—Remains quiet with factors quoting the same prices on all grades.

Blood—Has settled to a stationary position with the close of the active season. Current quotations for both New York and Chicago are $4.25 unit.

Bone Meal—Is at a firm level with prices of $31.00 ton for domestic material and $29.50@$30.00 for South American shipment.

Carnauba Wax—The spot market for all grades seems to have a more lively attitude this week. No. 1 yellow at 54c @ 56c and No. 2 regular 53c@ 54c lb.

Divi Divi—Is quiet here and for shipment, with no demand apparent,

Industrial Raw Materials

Albumen, egg edible ..... lb	.90		**.92**
Tech., 100 lb drs. ... lb	.85		**.86**
Blood, 225 lb bbls ..... lb	.45	:	**.55**
Vegetable edible ..... lb	.60	:	**.65**
Technical ..... lb	.50	:	**.55**
Annatto, fine ..... lb	.41	:	.48
Archil., double 600 lb bbls .... lb	.13	:	.14
Triple, 600 lb bbls ..... lb	.14	:	.15
Cone, 600 lb bbls ..... lb	.18	:	.20
Asbestine c-l wks ..... ton	...	:	14.75
lc-l wks ..... ton	...	:	18.00
Bees Wax, white cases ..... lb	.58	:	.60
Yellow, refined cases ..... lb	.46	:	.48
Crude, bags ..... lb	.40	:	.41
Commercial cs, ... lb	.27	:	.28
Blood dried fob NY ..... unit	...	:	4.25
Chicago ..... unit	...	:	4.25
S Am Shipment ..... unit	...	:	**3.90**
Bone Raw Chicago ..... ton	29.00	:	30.00
Bone Meal, 3 & 50 imp .. ton	30.00	:	31.00
Bone Ash, 100 lb kegs ..... lb	.06	:	.07
Black, 200 lb bbls lb	...	:	.08¼
Candelilla Wax, bags ..... lb	.33	:	.35
Carnauba Wax, Flor., bags .... lb	.50	:	nom.
Powd ..... lb	.50	:	nom.
No. 1, Yellow, bags ..... lb	.54	:	.56
No. 2, regular bags ..... lb	.48	:	.50
No. 2, N. Country bags ..... lb	...	:	nom.
No. 3, N Country bags ..... lb	.34	:	.35
No. 3, chalky bags ..... lb	.35	:	.36
CHARCOAL			
Hardwood, lump, bulk wks .. bu	.18	:	.19
Wood, powd., 100 lb bbls ..... lb	.04	.	.05
Willow, powd 100 lb wks bbls lb	.06	.	.06¼
Chestnut clarified 25% tks wks lb	.02	:	**.02¼**
Ebls, wks ..... lb	.03	:	**.03¼**
Powd., 60% 100 lb bags wks lb	.05½	:	.05¾
Decolorized bags wks ..... lb	.06½	:	.07
Cudbear, English ..... lb	.16	:	.17
Cutch Rangoon 100 lb bales .... lb	...	:	.15
Tablets, 120 lb boxes .... lb	.13	:	.14
Borneo solid, 100 lb bales .. lb	.05½	:	.05¾
Cyanamide, bulk, c-l wks Amm unit	1.82½	:	1.90
Imp. ..... Amm. unit	1.80	:	1.85
Dextrin, white corn 140 lb bags			
c-l ..... 100 lb	...	:	3.87
bags c-l ..... 100 lb	...	:	3.97
Canary ..... 100 lb	...	:	3.92
bags lc-l ..... 100 lb	...	:	4.02
Potato, white 220 lb bags lc-l lb	...	:	.08½
Yellow, 220 lb bags .. lb	...	:	.08½
Tapioca, 200 lb bags lc-l .. lb	.08	:	.08¼
Divi Divi Extract ..... lb	.04	:	nom.
Pods, bags ship ..... ton	47.50	:	48.00
EARTH Diatomaceous see Kieselguhr			
Egg Yolk, 200 lb cs ..... lb	.75	:	.77
Ester Gums Dark, 280 lb bbls .. lb	.13¾	:	.14
Light, 280 lb bbls ..... lb	.14	:	.14¼
Fish Scrap, dried wks ..... unit	...	:	nom.
Acid Bulk 7 & 3½ Deliv			
Norfolk & Balt basis.... unit	...	:	nom.
Flavine Lemon 55 lb cs ..... lb	1.10	:	1.15
Orange 70 lb cs ..... lb	.85	:	.90
Fossil Flour ..... lb	.02½	:	.04
Fustic, solid 50 lb boxes ..... lb	.20	:	.23
Crystals, 100 lb boxes ..... lb	.20	:	.22
Liquid, 51° 600 lb bbls .... lb	.09	:	.10
Fustic, sticks ..... ton	30.00	:	32.00
Chips ..... lb	.04	:	.05
Gall extract ..... lb	.20	:	.21
Gambier 25% liq.,450 lb bbls lb	.12	:	.14
Common 200 lb cases ..... lb	.08	:	.09
Singapore cubes, 150 lb bags lb	...	:	.19
Gelatin Technical 100 lb cs ... lb	.45	:	.50
Glucose (Grape Sugar) dry 70°			
bags c-l NY ..... 100 lb	3.14	:	3.24
80° bags c-l NY ..... 100 lb	3.24	:	3.34
Tanners' Spcl 100 lb bgs 100 lb	...	:	3.14
GLUE, pure white bbls ..... lb	.22	:	.26
Medium white, bbls ..... lb	.20	:	.24
French bbls ..... lb	.18	:	.25
High Grade, bbls ..... lb	.35	:	.40
Bone, regular, bbls ..... lb	.12	:	.14
Fish bbls ..... gal	1.50	:	1.75
Hide bbls ..... lb	.14	:	.24

Gums
Oak Bark

Industrial Raw Materials

Osage Orange
Whiting

GUM, Accroides, Red, coarse and fine, 140-150 lb bags	lb	.03¾	.04½
Powdered, 150 lb bgs	lb	.06	.06½
Accroides, Yel. 150-200 lb bgs	lb	.18	.20
Animi (Zanzibar) Bean and pea 250 lb cases	lb	.40	.45
Glassy, 250 lb cases	lb	.60	.65
Asphaltum, Barbadoes, Manjak 200 lb bags	lb	.09	.12
Egyptian, 200 lb cases	lb	.15	.17
Gilsonite selects 150 lb bgs	ton	55.00	60.00
Benzoin, Sumatra, Tech., 120 lb cases	lb	.30	.32
Copal, Congo, 112 lb bags			
Water White,	lb	.35	.36
Light Amber,	lb	.12½	.14
Dark Amber,	lb	.08¾	.09
Clean Opaque	lb	.14	.15
Copal, East Indian 224 lb cases 180 lb bags—			
Pale, E. I. Bold	lb	.17	.17½
Pale, E. I. Chips	lb	.07½	.08
Copal, Manila, 180-190 lb Baskets—			
Pale Bold, Loba A,	lb	.16	.16½
Pale Bold, Nubs, Loba B	lb	.15	.15¼
Pale, Bold, Leba C	lb	.13	.13½
Pale Nubs, P. N.	lb	.12	.12½
Pale Bold, 224 lb cases	lb	.16	.18
Copal, Pontianak, 24 lb cases—			
Pale, Bold, genuine No. 1	lb	.25	.25½
Pale, genuine spot chips	lb.	.13	.14¼
Damar, Batavia standard 136 lb cases	lb	.26½	.27
Batavia E Seeds 136 lb cs	lb	.18¼	.19
Batavia F Splinters 136 lb cases and bags	lb	.14	.14½
Batavia, Dust, 160 lb bags	lb	.10½	.11⅛
Singapore No. 1 224 lb cs	lb	.34	.36
Singapore No. 2, 224 lb cs	lb	.22½	.23½
Singapore No. 3, 180 lb bgs	lb	.11	.11¼
Elemi, No. 1, 80-85 lb cs	lb	.13	.13½
No. 2, 80-85 lb cases	lb	.12	.12½
No. 3, 80-85 lb cases	lb	.11½	.12
Kauri No. 1, 224-226 lb cs	lb	.60	.61
No. 2, fair pale 224-226 lb cases	lb	.40	.41
Bush Chips 224 - 226 lb cases	lb	.38	.40
Pale Chips 224-226 lb cases	lb	24½	.26
Brown Chips 180-200 lb bgs	lb	.10	.12
Sandarac Prime quality 220 lb bags and 300 lb casks	lb	.25	.26
Graphite crude 220 lb bags	ton	15.00	35.00
Flake, 500 lb bbls	lb	.05	.09
HEMATINE, Paste, 500 lb bbls	lb	.09	.12
Crystals, 400 lb bbls		.12	.20
Hemlock, 25% 600 lb bbls wks	lb	.03½	.03¾
Bark	ton	...	16.00
Hypernic, 51° 600 lb bbls	lb	.12	.15
Indigo Madras bbls	lb	1.28	1.30
20% paste drums	lb	.14	.15
Japan Wax 224 lb cs	lb	.17¾	.18
KIESELGUHA, 95 lb bags NY	ton	60.00	70.00
Larch 25% 600 lb bbls wks	lb	.03¾	.04
Powd., 100 lb bags wks	lb	.08	.09
Logwood 51° 600 lb bbls	lb	.08¼	.08½
Lower grades	lb	.07½	.08
Solid, 50 lb boxes	lb	.12	.15
LOGWOOD sticks	ton	26.00	27.00
Chips 150 lb bags	lb	.03	.03½
Madder, Dutch	lb	...	.30
Mangrove, 55% 400 lb bbls	lb	.03¼	nom.
Mangrove Bark, African	ton	38.00	38.50
Marble Flour, bulk	ton	10.00	12.00
See also Calcium Carbonate under Chemicals			
Montan Wax, crude bags	lb	.06½	.07
Bleached bags	lb	.24	.27
Myrobalans 25% liquid bbls	lb	.04	.04¼
50% solid, 50 lb boxes	lb	.08	.08¼
Myrobalans, bags, J1	ton	42.00	44.00
R2.	ton	...	nom.
J2	ton	...	37.00
Nitrogenous Material bulk	unit	...	3.60
NUTGALLS, Chinese, bags	lb	.17	.18
Aleppy bags	lb	.25	nom.
Powd. bags	lb	.22	.24
Oak bark, whole	ton	20.00	23.00
Ground	ton	45.00	50.00
Oak, tanks wks	lb	...	.03½
23-25% liq. 600 lb bbls wks	lb	.04	.04½
Solid, powd	lb	.07½	.08

nominal offers are heard at $47.00 @ $48.00 ton.

Egg Yolk—A lack of consuming demand together with a shortage of spot stocks feature this market. Prices are lower, at 75c@ 77c lb., dependent upon quantity.

Gums, Varnish—Standard Batavia damar and kauri continue to be of prime interest on a quiet market.

Japan Wax—Activity is limited at the moment and the price of 17¾ @18c serves for both spot and shipment figure.

Mangrove Bark—A temporary shortage of local stocks drove the spot price up to $38.50 ton, however as this condition is not expected to last for long, the market should recede shortly. Prices for future shipment and the interest shown bears that of a quiet and consuming nature.

Myrobalans—J1's are a bit higher this week, with importers quoting $42.00@$44.00 with little buying return. J2's are also higher with importers figures named at $37.00@ $37.50. R2's are still nominal and will remain so until the new crop. Taken generally myrobalans are quiet with the rest of the tanning materials.

Rosins—The rosin market is firm and prices are somewhat lower than those quoted a week ago. The heavy receipts have caused this and the presence of a good demand prevented them from dropping lower. A good buying inquiry is noted and at its present steadiness it may soon regain its former losses. Current quotations are: B,D,E $10.10; F,G $10.15; H,I $10.20; K,M $10.25; N $10.35; WG $11.70; WW $12.85.

Sumac—The ground sumac market has eased off somewhat lately and importers are offering supplies for shipment naming $74.00@$77.00, a figure $2.00 ton less than that last reported. The announcement of this reduction did not seem to prove of any attraction to buying interests who are not as active as they are normally.

Shellac—Shows a continued strength with a shortage of stocks both here and abroad. Garnet was advanced 1c lb. and is now named at 49c@50c. Bone dry is quoted at 59c@61c as to quantity.

Turpentine—Closed the week on a firm basis of 54c gallon, 3½c lower than the price named last week. With heavy receipts a descending tone is loaned to the market but it is expected to settle somewhere close to this level.

Osage Orange 51° liquid	lb.	.07	.07½
Powd, 100 lb bags	lb.	.14½	.15
Crystals	lb.	.16	.17
Paracouarone, 230 lb drums	lb.	.12	.15
Paraffin, ref'd. 200 lb cs slabs			
118-120 deg. M.P.	lb.	.08	.09
123-127 deg. M.P.	lb.	.06½	.06¾
128-132 deg. M.P.	lb.	.07½	.07¾
133-137 deg. M.P.	lb.	.08	.08½
138-140 deg. M.P.	lb.	.08¾	.10
Phosphate Acid, 16% Bulk wks	unit	.62½	.65
Phosphate Rock, fob., mines			
Florida Pebble 68%	ton	3.00	3.15
Florida Pebble 70%	ton	3.50	3.65
Florida Pebble 72%	ton	4.00	4.15
Florida Pebble, basis 75%-74%		...	5.00
Florida Pebble, 75%		...	5.75
Florida Pebble, basis 77%-76%		...	6.25
Tennessee 72%	ton.	...	5.00
Pine Oil, stm., dist, bbls	gal.	...	.70
Destructive dist.	lb.	.63	.64
Prime	bbl.	8.00	10.60
Plaster Paris, tech., 250 lb bbls	bbl.	...	3.30
Pumice Stone, lump, 250 lb bbls	lb.	.04½	.06
Lump, bags	lb.	04	.05
Powdered, 350 lb bbls	lb.	.02½	.03
QUEBRACHO, 35% liquid tks.	lb.	.03	.03½
450 lb bbls c-l	lb.	.03½	.04
35% bleaching, 450 lb bbls	lb.	.04	.05
Solid 63% 100 lb bales clf	lb.	.04½	.04¾
Clarified, 64% bales	lb.	...	.05
Quercitron, 51° 450 lb bbls	lb.	.06½	.07
Solid. 100 lb boxes	lb.	.10	.13
Quercitron, bark, rough	ton	...	14.00
Ground	ton	34.00	35.00

Rosins (Solid in 600 lb bbls gross for net)

B	9.70	I	10.90
D	9.75	K	10.90
E	10.25	M	11.00
F	10.40	N	11.25
G	10.75	WG	12.75
H	10.90	WW	13.75

(Sold in 600 lb bbls net, quotations based on a unit of 280 lb)

Rosin Oil first run 50 gal bbls	gal	...	.57
Second run bbls	gal	...	.62
Rotten Stone lump imp. bbls	lb.	.07	.08
Lump selected, bbls	lb.	.09	.12
Powdered, bbls	lb.	.03	.05
Domestic bags mines		24.00	30.00
Sage Flour 150 lb bags	lb.	.04¼	.05
Shellac, T. N., bags	lb	.49	.50
Superfine bags	lb	...	.53
Garnet, bags	lb	.49	.50
Bone dry, bags	lb	.59	.61
Spruce, 25% liquid tanks, wks	lb.	.01	.01⅛
bbls	lb.	...	.01⅝
Powd, 50% 100 lb bags wks	lb.	.02	.02¼
Starch, rice, 140 lb bags	lb.	.09	.10
Powd. 140 bgs. c-l	100 lb	...	3.22
Bags le-l	100 lb	...	3.32
Pearl, 140 lb bags	100 lb	...	3.12
Bags le-l	100 lb	...	3.22
Potato domestic, 200 lb bgs c-l	lb.	.04¾	.05
Imported bags duty paid	lb.	.06¼	.06½
Wheat, dom., thick bags	lb.	.06½	.07
Thin, bgs	lb.	09½	.10
Sol. Potato	lb.	.06	.06½
Sumac, extract, liq 450 lb bbls	lb.	.05	.06
CP. 450 lb bbls	lb.	...	.10½
Stainless, 600 lb bbls	lb.	.11	.11½
Sumac, Sicily leaves 100 lb bags	ton	130.00	nom.
Ground shipment	ton	74.00	77.00
Virginia, 150 lb bags	ton	55.00	60.00
TALC, Italian 220 lb bags NY	ton	40.00	50.00
Refined, white bags	ton	50.00	55.00
French, 220 lb bgs NY	ton	30.00	35.00
Refined, white bags	ton	38.00	45.00
Dom., crude, 100 lb bags NY	ton	12.00	15.00
Refined 100 lb bags NY	ton	16.00	18.00
Tankage, ground NY	unit	4.15 &	.10
High grade fob Chicago	unit	4.50 &	.10
So. Am. clf	unit	4.40 &	.10
Tapioca Flour, high grade bgs	lb	.04½	.04½
Medium grade, bgs	lb	.03½	.03¾
Low grade, bags	lb.	.03	.03¼
Tar, Kiln-burnt	bbl	15.50	16.00
Retort bbls	bbl	16.00	16.50
Tripoli, 500 lb. bbls	100 lb	2.50	3.00
Turpentine Spirits bbls	gal	.59¾	.65
Wood steam Dist. bbls	gal	.49¾	.55
Valonia Cups 30-31% tan	ton	...	nom.
Beard, 42% ton bags	ton	...	66.00
Mixture Bark bags	ton	...	Nom
Wattle Bark, bgs	ton	49.50	50.00
Extract 55% dble bgs ex-dock	lb.	...	.05¾
Whiting 200 lb bags c-l wks 100 lb.		...	1.25
Alba bags NY c-l	ton	...	13.00
Gilders, bags NY c-l	100 lb.	...	1.35

Import Manifests

Heavy Chemicals and Other Industrial Raw Materials.

IMPORTS AT NEW YORK
June 1 to 7

ACIDS—Acetic, 18 drs., Hensel Bruckmann & Lorbacher, Hamburg; **Benzoic,** 3 cs., H. J. Baker & Bro., London; **Cresylic,** 118 cks., Assoc. Metals & Minerals Co., Rotterdam; 112 cks., W. Van Doorn & Co., Rotterdam; 70 drs., Gallagher & Ascher, Rotterdam; **Formic,** 200 demijohns, A Klipstein & Co., Hamburg; 74 carboys, American Cyanamid Co., Hamburg; 160 carboys, F. Rudolff, Hamburg; **Oxalic,** 38 cks., A. Klipstein & Co., Rotterdam; **Tartaric,** 150 kegs, Superfos Co., Genoa; 200 brls., B. Meyer, Rotterdam; **Stearic,** 50 bgs., C. R. Spence Co., Rotterdam.

ALCOHOL—91 drs., Virgin Island Prod. Co., St. Croix; **Methyl,** 173 drs., Kuttroff, Pickhardt & Co., Rotterdam.

ALUM—Chrome, 10 kegs, Gerhard & Hey, Liverpool.

AMMONIUM SALTS—Carbonate, 20 cks., J. C. Wiarda & Co., Glasgow; **Chloride,** 6 cs., Solvay Sales Corp., Liverpool; **Nitrate,** 103 cks., R. W. Greeff & Co., Oslo; 198 cks., R. W. Greeff & Co., Skein.

ANTIMONY—Oxide, 100 bgs., Wah Chang Trdg. Corp., Shanghai; 100 cks., C. W. Leavitt & Co., Havre; **Regulus,** 250 cs., Harshaw Fuller & Goodwin, Hankow; 250 cs., D. L. Moss & Co., Hankow; 150 cs., Sino Java, Handel Inc., Hankow; 500 cs., Mitsui & Co., Hankow; 250 cs., Wah Chang Trdg. Corp., Hankow; 500 cs., F. A. Cundill & Co., Hankow; 250 cs., Caldbeck, Macgregor Co., Shanghai; 100 bgs., Sino Java Handel, Shanghai.

ARSENIC—84 brls., American Smelting & Ref Co., Tampico; 30 cks., Ore & Chem. Corp., Hamburg; 100 cks., A. Klipstein & Co., Hamburg.

BARIUM HYDRATE—53 brls., Innis Speiden & Co., Hamburg.

BARYTES—600 bgs., E. L. Bullock & Sons, Hamburg; 50 brls., A. Hurst & Co., Hamburg; 1,000,000 kilos, Ore & Chem. Corp., Rotterdam; 250 bgs., C. J. Osborn & Co., Bremen.

BLANC FIXE—40 cks., Smith Chem. & Color Co., Rotterdam; 40 cks., J. J. Shore & Co., Bremen; 303 cks., A. Hurst & So., Hamburg.

BUTYL—Acetate, 205 drs., Kuttroff Pickhardt & Co., Rotterdam; 3 drs., Kuttroff Pickhardt & Co., Rotterdam; **Aldehyde,** 5 drs., Kuttroff Pickhardt & Co., Rotterdam; **Glycol,** 1 cse. Kuttroff Pickhardt & Co., Rotterdam.

CARBON—3 brls., E. Urbain, Havre.

CASEIN—2085 bgs., Atterbury Bros., Buenos Aires; 417 bgs., Kalbfleisch Corp., Buenos Aires; 13 bgs., T. M. Duche & Sons, Southampton.

CHALK—400 bgs., C. B. Chrystal & Co., Antwerp; 500 bgs., Smith Color & Chem. Co., Antwerp; 1800 bgs., Baker Paint & Varnish Co., Antwerp; 1000 bgs., J. H. Nicholas & Co., Antwerp; 800,000 kilos, J. W. Higman & Co., Dunkirk; 550,000 kilos, Taintor Trdg., Co., Dunkirk.

CHEMICALS—20 cks., B. Bernard, Antwerp; 70 cs., Pfaltz & Bauer, Hamburg; 200 drs., A. Klipstein & Co., Hamburg; 37 cks., Jungmann & Co., Hamburg; 5 cs., Heyden Chem. Corp., Hamburg; 100 drs., C. L. Huisking Inc., Hamburg; 3 kegs Tar Acid Ref. Co., Liverpool; 19 cs., Hoffman La Roche Chem. Works, Hamburg; 100 brls., Hummel & Robinson, Bremen.

CLAY—50 cks., Vesuvius Crucible Corp., Rotterdam; 165 cks., National City Bank, Rotterdam.

COLORS—3 brls., B. Bernard, Antwerp; 3 brls., L & R Organic Prod. Co., Antwerp; 2 brls., L & R Organic Prod. Co., Havre; 3 brls., L & R Organic Prod. Co., Hamburg; 32 cks., Ciba Co., Havre; 11 cks., Geigy Co., Havre; 10 cks., American Express Co., Havre; 8 cks., Sandoz Chem. Worksk, Havre; 1 ck., J. Campbell & Co., Antwerp; 2 pgs., A. Hurst & Co., Hamburg; 4 cs., B. F. Drakenfeld & Co., Havre; 3 cs., B. F. Drakenfeld & Co., Bremen; 81 cks., C. J. Osborn & Co., Rotterdam; 2 cs., B. F. Drakenfeld & Co., Bremen; 2 cs., L. Uhlfelder & Co., Bremen; 25 cs., T. Riessner, Antwerp; 17 cs., B. F. Drakenfeld & Co., Bremen; 5 cs. Bryant & Hefferman, Hamburg; 8 cs., E. C. Ballow, Hamburg; 34 cs., Baer Bros., Hamburg; 9 cs., T. D. Downing & Co., Hamburg; **Earth,** 23 cks., Reichard Coulston Inc., Hamburg; 20 cks., C. J. Osborn & Co., Hamburg; 37 cks., Fezandie & Sperrle, Bremen; 17 brls., Reichard Coulston, Bremen.

CRYOLITHE—100 bgs., Jungmann & Co., Hamburg.

DIVI DIVI—148 bgs., Atlantic Shpg. Co., Curacao.

EARTH—550 bgs., Reichard Coulston Inc., Leghorn; 40 brls., 30 cks., Wishnick Tumpeer Inc., Leghorn; 50 brls., J. H. Furmann, Leghorn; 5 brls., Whittaker, Clark & Danniels, Leghorn.

EPSOM SALTS—300 brls., H. Hinrichs Chem. Corp., Hamburg.

ETHYLEN CHLOR CARBONATE—210 carboys, Kuttroff Pickhardt & Co., Rotterdam.

EXTRACTS—Quebracho, 1005 bgs., J. Andrsen & Co., Buenos Aires; 32405 bgs., Tannin Corp., Buenos Aires.

ETHYL—Chloride, 16 cs., Hensel Bruckmann & Lorbacher, Hamburg; **Chlorformate,** 206 bottles, Kuttroff Pickhardt & Co., Rotterdam.

GELATINE— 10 cs., Pflatz & Bauer, Rotterdam; 74 cs., P. Puttmann, Bremen.

GLAUBER SALTS—75 cks., Monmouth Chem. Corp., Hamburg.

GLUE—272 cs., L. W. Ferdinand & Co., London; 14 pgs., L. W. Ferdinand & Co., London 99 bgs., W. Neuman, Havre; 400 bgs., W. R. Grace & Co., San Antonio; 100 bgs., Milligan & Higgins, London; 90 bgs., Gallagher & Ascher, Liverpool; 105 pgs., W. E. Miller, Havre; 128 pgs., W. E. Miller, Antwerp.

GLYCERINE—60 drs., Parsons & Petit, Rotterdam; 20 drs., Armour & Co., Rotterdam; 20 cks., Armour & Co., Genoa; 100 cks., Hercules Powder Co., Rotterdam; 45 drs., Procter & Gamble Co., Havana.

GRAPHITE—85 brls., Asbury Graphite Mills Colombo; 1943 bgs., J. F. Strakey & Co., Colombo; 1 28 bgs., C. E. Pettinos, Marseilles.

GUMS—Arabic, 33 bgs., Thurston & Braidich, London; 60 bgs., Brown Bros. & Co., Bombay; 294 bgs., J. Wolf & Co., Bombay; **Copal,** 30 bgs., S. Winterbourne, Antwerp; 165 bgs., A. Klipstein & Co., Antwerp; 200 bgs., Innes & Co., Antwerp; 184 bgs., S. Winterbourne, Antwerp; 125 bgs., Stroock & Wittenberg, Antwerp; 150 bgs., France & Darling, Antwerp; 19 bgs., J. D. Lewis, Antwerp; 136 bgs., G. W. S. Patterson & Co., Antwerp; 64 bgs., L. C. Gillespie & Son, Singapore; **Damar,** 50 cs., Jaeger & Co., Singapore; 200 cs., Innes & Co., Batavia; 400 cs., L. C. Gillespie & Sons, Batavia; 100 cs., Paterson Boardman & Knapp, Batavia; **Karaya,** 28 bgs., Thurston & Braidich, Bombay; 204 bgs., F. Vliet Co., Bombay; 129 bgs., Guaranty Trust Co., Bombay 128 bgs., T. M. Duche & Sons, Bombay; 40 bgs., J. Wolf & Co., Bombay.

INTERMEDIATES—10 cs., H. A. Metz, Rotterdam; 12 cks., Grasselli Dyestuff Corp., Rotterdam.

IRON—Chloride, 250 cks., Th. Goldschmidt Corp., Hamburg; **Oxide,** 60 brls., E. E. Marks & Co., Malaga; 80 brls., J. H. Nicholas & Co., Malaga; 92 cks., J. A. McNulty, Liverpool; 80 brls., Wishnick Tumpeer, Malaga; 50 brls., C. J. Osborn & Co., Malaga; **Perchloride,** 45 cks., Roessler & Hasslacher Chem. Co., Hamburg.

KAOLIN—125 cks., 2 cs., Roessler & Hasslacher Chem. Co., Hamburg.

LIME—Chlorinated, 50 cs., H. Kohnstamm, Liverpool.

LITHOPONE—600 cks., B. Moore & Co., Rotterdam.

MAGNESIUM—Calcined, 30 cs., E. R. Squibb & Sons, Manchester; 60 cs., Schofield Donald & Co., Manchester; **Carbonate,** 6 cs., Yardley & Co., London; 25 cs., A. Hurst & Co., Manchester; **Chloride,** 179 drs., Composition Material Co., Hamburg; 90 drs., Innis Speiden & Co., Hamburg; 134 drs., Trust Co., of N. J. Hamburg; 385 drs., Innis Speiden & Co., Hamburg.

MYROBALANS—3448 bgs., A. Klipstein & Co., Bombay; 3760 bgs., Procter, Ellison & Co., Calcutta; 800 bgs., Procter, Ellison & Co., Bombay.

NAPHTHALENE—250 bggs., Roessler & Hasslacher Chem. Co., Rotterdam.

NICKEL—Oxide, 5 cks., Roessler & Hasslacher Co., Hamburg; **Sulfate,** 100 cks., Gallagher & Ascher, Havre.

OCHRE—60 cks., Hummel & Robinson, Marseilles; 100 cs., Hummel & Robinson, Malaga; 125 cks., Scott L. Libby Corp., Marseilles, 256 pgs., Scott L. Libby Corp., Marseilles; 4 brls., J. H. Nicholas & Co., Malaga; 472 cks., Reichard Coulston Inc., Marseilles 145 cks., C. K. Williams & Co., Marseilles.

OILS—Cod, 608 cks., National Oil Products Co., St. Johns; **Codliver,** 55 brls., P. R. Dreyer, Bergen; 400 brls., Burroughs Wellcome Co., Bergen; 516 brls., Scott & Bowne, Bergen; 300 brls., Maltine Mfg. Co., Bergen; 110 brls., C. L. Huisking, Bergen; 50 brls., H. Hinrichs Chem. Corp., Bergen; **Olive,** 100 cs., Micronticos Bros, Seville 75 cs., R. U. Delapenka & Co., Genoa; 100 cs., Cosmo Daniele, Genoa; 500 cs., T. Piptone, Genoa; 200 cs., G. Sasso & Son, Genoa; 100 cs., G. Cresci, Leghorn; 252 cs., F. Romeo & Co., Malaga; 110 cs., M. Caragol & Son, Barcelona; 160 drs., Strohmeyer & Arpe, Malaga; 100 cs., Garneau & De Bruyn, Marseilles; 1000 cs., I. F. Roncallo, Genoa; **Palm,** 83 cks., African & Eastern Trdg. Co., Grand Bassam; 90 cks., African & Eastern Trdg. Co., Hamburg; 41 cks., W & A Leaman, Abonema; 14 drs., 29 cks., Wishnick Tumpeer, Grand Bassam; 159 cks., Soc. Comm De African, Grand Bassam; 63 cks., African & Eastern Trdg., Corp. Hamburg; 33 cks., Rayner & Stonington, Liverpool; 28 cks., D. Bacon, Hamburg; 159 tons African & Eastern Trdg., Co., Duala; 167 tons 8 cwt., Niger Co., Duala; 160 cks., G. B. Ollivant & Co., Duala; **Sulfur,** 100 brls., J. B. Desnap & Co., Patras; 100 brls., National Oil Products Co., Piraeus; 250 brls., H. W. Peabody & Co., Piraeus; 200 brls., Brewer & Co., Piraeus; 200 brls., Smith Weihman Oil Co., Piraeus; 300 cks., H. W. Peabody & Co., Naples; 300 brls., Leghorn Trdg. Co., Naples; **Whale,** 7800 tons, Procter & Gamble Co., Wellington.

OSSEIN—344 bgs., American Glue Co., Marseilles.

PHOSGENE—10 bottles, Heyden Chem. Corp., Hamburg.

PHOSPHORUS—Oxychloride, 44 cks., Kuttroff Pickhardt & Co., Hamburg.

POTASSIUM SALTS—Carbonate, 151 cks., A. Klipstein & Co., Hamburg; **Caustic,** 59 cks., Innis Speiden & Co., Rotterdam; 18 cs., Mallinckrodt Chem. Works, Gothenburg; **Chlorate,** 1100 cks., Monmouth Chem Corp., Hamburg; 2000 cks., Uniform Chem. Products Co., Hamburg; **Cyanide,** 19 drs., Bladiac Inc., Antwerp; **Muriate,** 1250 bgs., N. V. Potash Export My., Antwerp; 8000 bgs., American Agric. Chem. Co., Barcelona; **Nitrate,** 1016 bgs., Kuttroff Pickhardt & Co., Hamburg.

PUMICE STONE—400 bgs., K. J. Griffiths Co., Canneto, Lipari; **Lump,** 3811 bgs., K. J. Griffiths Co., Canneto, Lipari; 21 cs., Calco Chem. Co., Hamburg.

QUICKSILVER—100 Flasks Leghorn Trdg. Co., Leghorn;; 100 flasks, Haas Bros., Tampico; 100 flasks E. I. DuPont De Nemours Co., Alicante.

SAL AMMONIAC—56 cks., H. Hinrichs Chem. Corp., Rotterdam; 15 cs., Solvay Sales Corp., Liverpool.

SALPETRE—100 bgs., Superfos Co., Hamburg.

SODIUM SALTS—Barbitone, 2 cs., Lo Curto & Funk, Rotterdam; **Caustic,** 25 cs., Mallinckrodt Chem. Workks, Gothenburg; **Chlorate,** 300 drs., Monmouth Chem. Works, Hamburg; **Cyanide,** 230 cs., American Cyanamid Co., Hamburg; **Disoda,** 193 cks., Rhodia Chem. Co., Rotterdam; **Nitrate,** 30,403 bgs., W. R. Grace & Co., Iquique; 201 bgs., Kuttroff Pickhardt & Co., Hamburg; 2464 bgs., R. W. Greef & Co., Skein; **Phosphate,** 50 kegs J. Lowe & Co., Rotterdam; 334 cks., Roes-

sler & Hasslacher Chem. Co., Antwerp; **Prussiate,** 29 cks., C. F. Smillie & Co., Rotterdam; **Silico Fluoride,** 80 cks., Superfos Co., Oslo; **Sulfite,** 70 drs., Phillipp Bros. Rotterdam.
SOOT—25 cks., Reichard Coulston Inc., Rotterdam.
SUMAC—700 bgs., A. Stauff & Co., Palermo; 350 bgs., J. S. Young & Co., Palermo.
TALC—44 brls., Lunham & Moore, Leghorn; 100 bgs., C. B. Chrystal Co., Genoa; 1500 bgs., C. Mathieu, Genoa.
TARTAR—587 bgs., Pfizer & Co., Marseilles; 200 bgs., Tartar Chem. Works, Marseilles; 30 cks., Tartar Chem. Works, Naples; 21 cks., Tartar Chem Works, Leghorn.
WAX—Bees, 26 bgs., K. Mandell & Co., Tampico; 79 bgs., Will & Baumer Candle Co., San Antonio; 45 bgs. W. R. Grace & Co., Talcahuano; 20 bgs., Lange Bros. & Co., Cristobal; 24 pgs., T. Norton & Co., Santos; 26 bgs., Strohmeyer & Arpe, Tampico; 5 Seroons J. J. Julia & Co., Monte Cristi; 7 bgs., Mecke & Co., Azua; 5 bgs., Selma Mercantile Corp., Azua; 9 bgs., J. J. Julia & Co., Azua; 98 bgs., W. R. Grace & Co., Valparaiso; **Carnauba,** 112 bgs., C. W. Jacobs & Allison, Ceara; 188 bgs., Strohmeyer & Arpe, Parnahyba; 178 bgs., Arkell & Douglas Pernambuco; 52 bgs., C. W. Jacobs & Allison, Para; 167 bgs., Smith & Nichols, Para; 214 bgs., Strohmeyer & Arpe, Parnahyba; **Mineral,** 120 bgs., Schlieman Co., Hamburg; **Montan,** 250 bgs., A. Klipstein & Co., Hamburg; 1350 bgs., Strohmeyer & Arpe, Hamburg.
WHITING—50 brls., 400 brls., E. L. Bullock & Son, Antwerp; 500 bgs., Central Union Trust Co., Antwerp; 2000 bgs., Nat. City Bank, Antwerp; 400 bgs., C. B. Chrystal Co., Hamburg; 2500 bgs., Scott L. Libby Corp., Havre.
WOODFLOUR—300 bgs., A. Kramer & Co., Rotterdam.
WOOL GREASE—150 brls., Pflatz & Bauer, Bremen; 100 cks., A. Klipstein & Co., Bremen.
ZINC—Chloride, 104 cks., A. Klipstein & Co., Antwerp; 61 brls., Roessler & Hasslacher Chem. Co., Hamburg; **Oxide,** 10 cs., Yardley & Co., London; 50 brls., Reichard Coulston Inc., Antwerp.

PHILADELPHIA IMPORTS
May 25 to June 1

ACID—Formic, 228 carbys., Order, Hamburg
ARSENIC—50 csks., Pfaltz & Bauer, Hamburg
BENZINE—3 pkgs., Atlantic Ref Co., Hamburg
BONES—4,511,429 kilos, Bough & Sons Co., Sante Fe & Rosario
CARBON—Decolorizing, 31 csks., Order, Bremen
CHALK—900 bgs., Order, Dunkirk; **Precipitated,** 25 csks, H J Baker & Bros., Bristol
CHEMICALS—73 bbls., Order, Hamburg; 34 csks., Order, Hamburg; 22 cs., Order, Hamburg; 19 csks., E H Bailey & Co., Bremen
CLAY—Ball, 626 tons, Various Consignees, Fowey; **China,** 4,667 tons, 5 cwt., Various Consignees, Fowey
COCOANUTS—Desiccated, 181 bgs., Order, Colombo
FLOUR—Bone, 670 bgs., Order, Trieste
FLUORSPAR—1,020,000 kilos, Order, Bremen
GLUE—200 bgs., Order, Hamburg; **Bone,** 500 bgs., Order, Trieste
GLYCERINE—5 csks., Order, Marseilles; **Crude,** 20 drms., Order, London
KAOLIN—1 bbl., Order, Bremen
LIME—Chlorinated, 21 cs., H Kohnstamm & Co., Liverpool
LINSEED—18,132 bgs., Louis Dreyfus & Co., Rosario; 85,475 bgs., Order, Rosario; 76,881 scks., Order, Rosario
MAGNESIA—Calcined, 22 cs., Donald Schofield & Co., Middlesboro
MAGNESITE—20,269 bgs., Harbison-Walker Refractories Co., Trieste; 20,081 bgs., Harbison-Walker Refractories Co., Trieste
MEAL—Bone, 4,500 bgs., Order, Bremen
OIL—Cod, 80 bbls., Order, Hull; **Olive,** 20 cs., Robert Shoemaker & Co., Leghorn; **Sulfur,** 100 bbls., Order, Bari; **Sulfur Olive,** 100 bbls., Order, Palermo; 100 bbls., Order, Palermo
ORE—Chrome, 3,250 tons, E J Lavino & Co., Beira; **Manganese,** 6,437 tons, 11 cwt., 3 qrs., E J Lavino & Co., Secondee
PEAT MULL—300 bls., Atkins & Durbrow, Bremen
PHOSPHORUS—Trichloride, 36 bottles, Order, Hamburg
POTASH—14 bgs., Brown Bros & Co., Hamburg; **Caustic,** 50 drms., Order, Hamburg
SOAP—Common, 40 cs., Order, Trieste
SODIUM—Cyanide, 400 drms., Order, Liverpool
TITANDIOXYDE—5 bbls., Foote Mineral Co., Hamburg
VARNISH—1 cs., B & O R R Co., Hamburg

IMPORTS AT NEW ORLEANS
May 27 to June 3

BONEMEAL—250 sacks, Order, Rotterdam
BARIUM—Hydrate, 76 casks, Order, Rotterdam
BAUXITE—2,366 tons, Republic Mining Co., Georgetown
CREOSOTE—7,277 tons, American Creosote Wks., Hamburg
CREOSOTE—Oil, 1,960 tons, Bernuth Lemcke, Antwerp
CALCIUM—Chloride, 45 casks, Order, Rotterdam
CHEMICALS—109 casks, Order, Rotterdam
GUM—Gnatie, 21 sacks, Wm Wrigley Co., Vera Cruz
MOLASSES—1,250,000 gals., Order, Jucaro
MINERAL WATER—185 cases, Order, Antwerp
SODA—Nitrate, 10,535 sacks, W R Grace, Iquique

IMPORTS AT BOSTON
May 29 to June 4

CHEMICALS—300 bgs., Paul Uhlich & Co., Rotterdam; 200 bgs., Order, Hamilton Ont., Rotterdam
CAUSTIC POTASH—100 drums, A Klipstein Co., Hamburg; 25 drums, R & H Chemical Co., Hamburg
CARBONATE POTASH—58 casks, Irving M Sobin Co., Rotterdam
CHLORIDE MAGNESIUM—148 dms, Brown Bros., Hamburg
EPSOM SALTS—100 bbls., R & H Chemical Co., Hamburg
MAGNESITE—140 bbls., Brown Bros., Rotterdam
YELLOW PRUSSIATE POTASH—8 casks, A Klipstein & Co., Rotterdam

IMPORTS AT SAN FRANCISCO
May 21 to 28

ACID—Cresylic, 79 drums, Order, Gothenburg
BEAN CAKE MEAL—500 bags, Enomoto & Co., Kobe
CHEMICALS—190 bbls., Order, Gothenburg
COPRA—550 sacks, Bank of New South Wales, Suva
LITHOPONE—12 bbls., Order, Gothenburg
OIL—Cod, 100 bbls., Wilbur Ellis Co., Yokohama; **Eucalyptus,** 50 cases, Atkins, Kroll & Co., Melbourne; 3 drums, E G Binz, Melbourne; **Peanut,** 140 cases, Shing Shun, Hongkong; 60 cases, Sing Shong, Hongkong; 150 cases, Yee Chong Lung, Hongkong; 50 cases, Kwong Yick, Hongkong; 30 cases, Shun Ong Co., Hongkong; **Rapeseed,** 25 cases, Mutual Supply Co., Kobe
TURPENTINE—20 bbls., Order, Gothenburg

IMPORTS AT BALTIMORE
May 27 to June 2

CHALK—Ground, 100 bags, 44,000 lbs., Farboil Paint Co., Eastern Moon, Rotterdam.
CLAY—200 casks, 82,060 lbs., A. Hurst & Co., Inc., New York, Anaconda, Rotterdam; 210 casks, 15 tons, H. A. Robinson & Co., Inc., Anacortes, Liverpool.
FERRO-MANGANESE—100 tons, Frank Samuel & Co., Lehigh, Middlesbroug.
MOLASSES—1,300,000 gals., Cuba Distilling Co., Catshoula, Jucara.
ORE—Iron, 19,800 tons, Bethlehem Steel Corp., Bethore, Cruz Grande; 6,000 tons, Bank of America, Anaconda, Rotterdam; 4729 tons, Bethlehem Steel Corp., Lady Brenda, Honaine; 11,000 tons, Bethlehem Steel Corp., Santore, Daiquiri; 10,000 tons, Bethlehem Steel Corp., Chilore, Cruz Grande; **Manganese,** 2,000 tons, Carnegie Steel Co., Imerbank, Calcutta.
SALT—Brown, 25 tons, Baltimore & Ohio, railroad; Anacortes, Liverpool.

IMPORTS AT NORFOLK
May 19 to 26

BITTER SALT—250 bags, Brown Bros. & Co., Bremen.
GREASE—Wool, 90 bbls., Order, Manchester
GYPSUM—Crude Calcium Sulphate, 1825 tons, Eastern Cotton Oil Company, Windsor, N. S. 1500 tons, Charles W. Priddy & Company, Cheverie, N. S.
STARCH—Potato, 1550 bags, Hall Trading Co., Rotterdam; 250 bags, Order, 25000 kilos, Brown Bros. & Co., Rotterdam.

NITROGEN IN U. S.

(*Special to* CHEMICAL MARKETS)

Washington, D. C., June 8—The United States, which five years ago had no plants for the fixation of atmospheric nitrogen, now has seven synthetic ammonia installations with a combined capacity of about 80 tons a day. While none of this output is finding its way into agricultural use, it is forcing additional quantities of by-products ammonia into the fertilizer market. In the synthetic-ammonia process, the method of atmospheric nitrogen fixation in which practically all commercial effort in this country is concentrated, purified hydrogen and nitrogen gas are made to combine at high pressures and temperatures so as to form ammonia. The ammonia thus obtained is readily transformed into salts suitable for use as fertilizer.

Fixed nitrogen, because of its limited occurrence in nature, presents the greatest problem in the maintenance of soil fertility. Nitrogen from the air is the logical ultimate source of supply, since free nitrogen comprises four-fifths of the air. Although Germany, with about 70 per cent of the world's production of atmospheric nitrogen, is still the center of the nitrogen-fixation industry, expansion in other countries has been very rapid in recent years. Atmospheric nitrogen has very largely supplied the increased demand in recent years for inorganic fixation, Chilean nitrate, and by-product ammonia. The progress of the nitrogen fixation industry is indicated by the fact that in 1925 the world's production of nitrogen by atmospheric fixation was 607,000 metric tons, compared with production of 340,000 metric tons of Chilean nitrate, and 330,000 metric tons of by-product ammonia. Probably nearly 90 per cent of this total of 1,277,000 metric tons was used in agriculture.

ACETATE OF LIME EXPORTS TO JAPAN

In 1924 the peak shipment of acetate lime to Japan seems to have been reached when the United States supplied approximately 97 per cent of the total imports. This trade dropped, however, to about 80 per cent in 1925 and increased to about 90 per cent in 1926. Tho following detailed figures show British India as our principal competitor.

Quantities are in piculs, each 133 1/3 pounds, and values in thousands of yen (par value $.49867).

Exports Chemicals, Oils ana Fats

EXPORTS AT NEW YORK

ACETONE—1 Drum April 18 Valparaiso.

ACIDS—Cresylic, 4 drs., May 12, Antofagasta; **Hydrochloric,** 30 carboys May 12 Calloa; 65 cyl. Apr. 18, Tocopilla; **Muriatic,** 4 carboys, May 13, Cienfuegos; **Stearic,** 20 bgs., Apr. 29, Santo Domingo; 6 bgs., May 3, Panama; 10 bgs., May 3, Amapala; **Sulfuric,** 10 drs., Apr. 10, Demerara; 5 drs., May 12, Guantanamo; 5 drs., May 17, Nuevitas; 60 drs., May 12, Talara; 1 drum May 11, Pto Cabello; 20 drs., Apr. 29, East London; 20 drs., Apr. 29, Port Natal.

ALCOHOL—3 drs., May 4, St. Croix; 5 drs., May 12, La Plata; 5 drs., May 12, La Plata; 6 cs., April 13, Hongkong.

AMMONIUM—Anhydrous, 10 cyl Apr. 19, Port of Spain; 30 cyl., May 13, Havana; 3 cyl., May 13, Corinto; 3 cyl., May 3, Corinto; 25 cyl., Apr. 13, Bangkok; **Sulfate,** 54 brls., May 14, Vancouver; 224 bgs., May 3 Demerara; 236 bgs., May 4 St. Kitts; 2240 bgs., April 19, Demerara; 448 bgs., April 19, Port of Spain; 1120 bgs., April 13, Columbo; 5 0 bgs., May 4, Martinique; 6000 bgs., May 4, Barbados; 1250 bgs., May 13, Havana.

ASPHALT—442 brls., May 10 Antwerp; 10 drs., May 3, Demerara; 91 cs., May 13, Liverpool; 2 drs., May 14, Auckland; 500 drs., May 18, Bristol; 6 drs., May 11, La Guaira.

BENZOL—196 drs., May 12, La Plata; 1 drum April 18, Valparaiso.

CALCIUM—Carbide, 3 drs., May 3, Brighton; 50 drs., May 20, Carupano; 20 drs., May 6, Pto Cortez; 14 drs., May 12, Antofagasta; 80 drs., May 12, Mollendo; 100 drs., April 13, San Juan Del Sur 40 cs., April 13, Buenaventura; 100 drs., April 25, Madras; 200 drs., April 25, Calcutta.

CARBON—Bisulfide, 22 drs., Apr. 17, Havana; **Black,** 60 cs., April 29, Hamburg.

CLAY—104 bgs., May 18, Copenhagen.

COAL TAR PRODUCTS—10 cs., May 3, Pto Colombia; 100 brls., April 13, Cristobal.

CORNFLOUR—300 cs., May 3, Pto Colombia; 15 brls., May 12, Callao; 40 bdls., May 6, Pto Barrios; 1000 bgs., May 18, Bristol; 50 cs., May 12, Manzanillo; 100 bgs., May 13, Havana.

CORNSTARCH—440 bgs., May 7, Guantanamo; 25 cs., May 7, Guantanamo; 740 bgs., May 4, Rotterdam.. 20 cs., May 6 Monte Cristi; 1000 cs., April 25 Bombay; 30 bdls., April 13, Buenaventura; 50 cs., April 28, Santiago; 10 cs., May 3, Panama; 440 bgs., May 18, Copenhagen, 516 bgs., May 4, Piraeus; 100 bgs., May 4, Salonica; 500 bgs., May 4, Constantinople; 2000 cs., 600 bgs. April 23, Alexandria; 10 cs., May 3, Panama.

CORN SYRUP—90 brls., May 18, Copenhagen; 30 brls., May 18, Oslo; 70 brls., May 14, Auckland; 15 brls., May 13, Havana.

CREOSOTE—2 drs., May 20, Paramaribo.

CYANIDE—150 drs., May 12, Salaverry; 80 cs., May 12, Mollendo; 38 drs., May 12, Antofagasta.

DEXTRINE—40 bgs., May 4, Rotterdam; 200 bgs., April 25, Bombay; 200 bgs., April 25, Calcutta; 32 bgs., May 14, Wellington.

DYESTUFFS— 241 drs., 259 kegs, May 11, Shanghai; 267 drs., May 11, Hongkong; 563 drs., May 11, Kobe 30 drs., May 11, Kobe; 6 drs., May 11, Pto Columbia.

ETHYL CHLORIDE—1 cse., May 12, La Plata.

EXTRACTS—Tanning, 20 brls., May 12, Mollendo; 27 brls., May 12, Valparaiso; 20 cs., May 14, Rio De Janeiro; 39 brls., May 18, Melbourne; 22 brls., May 18, Sydney.

GLUCOSE—20 brls., April 29, Capetown; 15 brls., April 29, East London; 60 brls., May 18, Oslo; 180 brls., April 30, London; 5 brls., May 14, Pto Alegrex; 10 brls., May 7, Manzanillo.

GRAPHITE—148 brls., May 18, Copenhagen.

GUMS—Arabic, 10 bgs., May 13, La Guaira.

IRON—Oxide, 13 brls., May 12, Cristobal.

LIME—70 drs., May 12, Salaverry; **Chloride,** 4 cs., April 19, Cristobal; **Hydrated,** 250 brls., April 15, Kingston.

LINSEED OILCAKE—5219 cs., May 4, Rotterdam; 19,999 bgs., April 22, Antwerp; 598 bgs., April 19, Port of Spain; 1313 bgs., May 18, Bristol; 1379 bgs., May 10, Antwerp.

MONOCHLORBENZOL—45 drs., April 29, Hamburg.

OILS—1 cse., May 18, Melbourne; **Coconut,** 10 drs., May 3, Panama; 10 drs., May 3, Panama; **Linseed,** 24 cs., April 13, Buenaventura; 10 drs., May 17, Nuevitas; 15 drs., May 17, Nuevitas; 30 cs., May 12, Chanaral; 1000 cs., April 13, Buenaventura; **Tar Acid,** 60 drs., April 13, Cristobal; **Palm,** 4 drs., April 19, Santa Marta; 13 drs., April 20, Havana.

PHOSPHATE—100 brls., May 18, Bristol.

POTASSIUM SALTS—3 drs., May 14 Lyttelton; **Sulfate,** 10 bgs., May 4, Domonica.

ROSIN—15 brls., May 3, Panama; 10 brls., May 11, Maracaibo; 68 brls. May 14 Lyttelton; 10 brls. May 20 Cumana.

SODIUM SALTS—50 bgs., May 17, Nuevitas; **Ash,** 83 brls., May 3, Cristobal; 10 brls., May 3, Panama; 20 brls., April 20, Havana; 28 brls., May 12, Antofagasta; 5 drs., May 12, Santos; 5 drs., May 12, Callao; 83 brls., May 3, Cristobal; 120 kegs, May 4, Rotterdam; 25 brls., April 13, Manila; 6 brls., April 28, Santiago; 5 brls., April 19, Cartagena; 5 drs., May 12, Santos; **Bicarbonate,** 32 cks., April 29, Naples; 8 brls., 15 kegs, May 14, Pto Alegre; **Caustic,** 10 drs., May 20, Cumana; 5 drs., May 7, Manzanillo; 13 drs., May 3, Panama; 160 drs., May 12, Tocopilla; 35 drs., May 12, Callao; 100 cs., April 1, Manila; 100 drs., April 1, Manila; 72 drs., April 19, Pto Colombia; 5 drs., April 19, Cartagena; 3 cs., May 3, Panama; 1,000 cs., May 12, Rio de Janeiro; 13 cs., May 3, Panama; 25 drs., May 3, La Libertad; **Sal,** 10 kegs, May 13, Maracaibo; **Silicate,** 21 drs., May 17, Nuevitas;; **Sulfate,** 10 cs., May 20, La Guaira

ULTRAMARINE BLUE—50 cs., April 13, Bangkok

ZINC—Dross, 67 brls., April 22, Antwerp; **Oxide,** 10 brls., May 20, Paramaribo; 20 kegs, May 11, Manila; 120 brls., April 25, Calcutta; 150 brls., April 13, Buenaventura; **Stearate,** 26 brls., April 14, Yokohama; 30 bgs., May 12, Antofagasta

RESIN ESTERS

(Continued from page 864)

fore it is added and it also pays to use a glycerin that is as highly concentrated as possible. This then reduces the evaporation of water to a minimum. After all the openings and ports have been closed, the temperature is gradually raised to 220 degrees C. The start of the esterification reactions is indicated by a considerable rise in pressure within the autoclave. The pressure should be maintained constant at approximately two atmospheres during the esterification. This can be easily done by controlling the valve on a blow-off pipe, which is also connected with the condensers. Just as soon as the reactions have been completed, the kettle is evacuated by means of a wet air pump and the temperature is raised up to 310 to 320 degrees C. During this stage of the process in which the more easily melting constituents are removed, "harder" products are obtained. If it is desired to obtain particularly light colored products, then it is necessary to admit carbon dioxide gas before and after esterification.

The autoclave installation generally consists of the pressure kettle, a reflux condenser which is connected to this kettle not only to allow the vapors to enter this condenser but also by a connection at the bottom of the latter to allow condensed products to flow back into the autoclave. The condenser is connected with a surface cooler and this is also connected with a water cooled condenser. Connections are so arranged that it is possible to shunt the reflux condenser out of the system and allow the vapors from the autoclave to pass directly into the surface cooler and water colled condenser.

In concluding attention is called to the excellent article on this subject in Farbe und Lacke, 1926, pages 297 ff. from which information has been freely drawn in preparing this article.

RECENT RAYON DEVELOPMENTS

(Continued from page 868)

silk is similar to cellulose acetate in dyeing properties, details of which are given in British patent 260,650.

In applying vat and sulphur colors to fabrics containing artificial fibers, particularly cellulose acetate silk, there is always the possibility that a great weakening and dulling of the luster of the artificial fiber will occur. This is due to the action of the strong alkali used in preparing the bath. It has been found that when the alkali metal or ammonium salts of hydroxy hemocyclic or heterocyclic compounds are used in place of part or all of the strong alkali, the loss of strength and luster is reduced or prevented. Among the compounds suitable for this use, as mentioned in English patent 262,506, are the potassium and sodium salts of phenol, cresol, resorcinol, alpha and beta naphthols, para chlorophenol and leucoanthraquinone. *"Textile World."*

I have frequently found that discussions between the sales department and the technical department have taken the form of a detailed statement of what the salesman would like to have, and a detailed statement by the manufacturing department of what it can readily produce, or by the technical department of what it can put the manufacturing department into a position to produce.—Charles M. Stine.

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Patents

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U. S., 10c U. S. Patent Office, Washington. British, draft on London, one shilling, British Patent Office, 25 Southampton Bldgs., Chancery Lane, W. C. 2, London. French one franc, Minister of Commerce & Industry, Paris. German, draft on Berlin, one mark, German Patent Office, Berlin.

Application date appears with each patent.

UNITED STATES PATENTS

Issued May 24, 1927

1, 29,528—Prepared Sulphur. F. H. Pough, St. Louis, assignor, Southern Acid & Sulphur Co. Nov. 24, 1924.

1,629,557—Arsenate Insecticide. H. W. Walker, Edgewood, Md. May 14, 1926.

1,629,648—Glass Composition. W. F. Bleecker, Boulder, Colo. July 22, 1922.

1,629,714—Cement Composition. C. E. Kraus, Babylon, N. Y. April 17, 1919.

1,629,803—Grate for Ball Mills. F. E. Marcy, San Diego. Nov. 22, 1926.

1,629,810—Gasoline. H. B. Setzler, Coffeyville, Kan., assignor, The National Refining Co., Cleveland. June 9, 1916.

1,629,819—Weed Destroying Composition. H. E. Hughes, Berkeley, Calif., assignor, The Weed Control Co. Sept. 16, 1924.

1,629,854—Artificial Marble. H. L. Bates, Greenfield, Mass. Sept. 4, 1926.

1,629,873—Acridine Derivatives and process. H. Jensch, Hoechst, assignor, I. G. Farbenindustrie A. G., Frankfurt, Germany. Sept. 3, 1921.

1,629,884-5—Triaryl Methane Dyes. H. Polikier, Leipzig and H. Haehle, Dessau-Ziebigk, Germany, assignors, I. G. Farbenindustrie A. G., Frankfort. May 6, 1926 and April 9, 1926.

1,629,894-2:3—Aminonaphthoic Acid. R. Tobler, Basel, Switzerland, assignor, Society of Chemical Industry of Basle. Mar. 26, 1926.

1,629,906—Stable Diazo Compound. G. de Montmollin and G. Bonhote, assignors, Society of Chemical Industry of Basle. Aug. 29, 1924.

1,629,908—Cracking Hydrocarbons. W. F. Faragher and W. A. Gruse, Pittsburgh, assignors, Gulf Refining Co. Jan. 15, 1921.

1,629,942—Drying Apparatus. L. H. Zeun, Baltimore, assignor, J. B. Adt Co. Dec. 23, 1924.

1,629,999—Low Viscosity Lacquer. E. M. Flaherty, Wilmington, assignor, E. I. du Pont de Nemours & Co. May 23, 1921.

1,630,050—Urea from Cyanamid. J. Breslauer and C. Goudet, Geneva, Switzerland, assignors, Societe d'Etudes Chimiques pour l'Industrie. Jan. 27, 1923.

1,630,074—Treating Sludge Acid. F. M. Rogers and F. V. Grimm, Whiting, Ind. and G. L. Wendt, Chicago, assignors, Standard Oil Co. Aug. 14, 1924.

1,630,079—Filter. J. E. Spalding and R. L. Archer, Collinsville, Ill. June 20, 1924.

1,630,101—Rust-Proofing Oil. R. E. Wilkin, Whiting, Ind., assignor, Standard Oil Co. Mar. 13, 1925.

1,630,103—Cellular Body of Asphalt. J. H. Young, assignor, H. H. Robertson Co., Pittsburgh. Nov. 8, 1926.

1,630,143—Flour Improver. E. J. Sullivan, Minneapolis. Aug. 26, 1926.

1,630,224—Electrolytic Method and Apparatus. K. E. Stuart, Niagara Falls, N. Y., assignor, Hooker Electrochemical Co., New York. Mar. 5, 1925.

BRITISH PATENTS

Issued April 27, 1927

266,695—Preserving Crops. Chemische Fabrik auf Actien vorm. F. Schering, Berlin. Feb. 9, 1927.

266,697—Synthetic Tanning Agents. I. G. Farbenindustrie A. G., Frankfurt. Feb. 10, 1927.

266,711—Fused Silica. Quartz et Silice, Paris. Feb. 21, 1927.

266,719—Filters Having Sheet Filtering Material. J. B. Vernay, Villeurbanne, Rhode, France. Feb. 22, 1927.

266,729—Reducing Carbonic Acid to Carbon Monoxide. F. M. Wiberg, Falun, Sweden. Feb. 23, 1927.

266,732—Vulcanizing Rubber. Soc. Italiana Pirelli, Milan. Feb. 23, 1927.

266,735—Sodium Nitrate. I. G. Farbenindustrie A. G. Feb. 24, 1927.

266,744—Treating Calithe. I. G. Farbenindustrie A. G. Feb. 25, 1927.

266,746—Making Emulsions. Chemische Fabrik Pott & Co., Dresden. Feb. 25, 1927.

266,752—Urea Formaldehyde Condensation Products. I. G. Farbenindustrie A. G. Feb. 28, 1927.

266,771—Azo Dyes. Farbenfabriken vorm. F. Bayer & Co., Leverkusen, Germany. Oct. 5, 1925.

266,803—Electrolytic Cells. F. Lawaczeck, Muenchen. Nov. 30, 1925.

266,809—Alkali Cyanides. J. C. Clancy, Asbury Park, N. J. Dec. 2, 1925.

266,850—Extracting Fats and Fatty Oils. A. E. Hatfield and Achille Serre Ltd., London. Dec. 31, 1925.

266,855—Filters Having Sheet Filtering Materials. G. L. P. Henderson, Westminster. Jan. 5, 1926.

266,857—Filtering Liquids. A. C. Handley, Mirfield, Yorkshire. Jan. 6, 1926.

266,940—Acid Sulphuric Esters of Aromatic Oxyalkylethers. I. G. Farbenindustrie A. G. May 4, 1926.

265,950—Mixing Apparatus. N. Bendixen and Milkanic Ltd., London. May 25, 1926.

267,017—Fire-Extinguishing By Solutions. L. Weidmann and E. Tiellet, Basle, Switzerland. Sept. 16, 1926.

267,018—Sulphur and purifying gases. I. G. Farbenindustrie A. G. Sept. 17, 1926.

267,038—Separating Paraffin and Mineral Waxes. Bergedorfer Eisenwerk A. G., Hamburg. Oct. 26, 1926.

267,041—Gelatine and Glue. A. Ehrenreich, London. Nov. 4, 1926.

267,058—Sterelizing Liquids. W. Matzka, London. Sept. 5, 1925.

267,071—Distilling Sulphurous Acid. Allgemeine Ges fuer Chemische Industrie, Berlin. May 14, 1926.

267,079—Liquid Fuels. Continentale A. G. fuer Chemische Industrie, Berlin. Aug. 12, 1926.

GERMAN PATENTS

May 5, 1927

441,857—Separating Solid Ingredients from Gases or Liquids, apparatus. T. M. S. Hutchins, Davenham and J. Swinburne, London. Feb. 15, 1925.

441,912—Electrical Precipitation of Impurities in Gases. Metallbank und Metallurgische Ges. A. G., Frankfurt. Apr. 29, 1925.

441,858—Electrolytic Apparatus. A. E. Knowles, Heswall, England. August 1, 1926.

441,807—Phosphorus Pentoxide or Phosphoric Acid. I. G. Farbenindustrie A. G. Frankfurt. Oct. 23, 1925.

441,808—Acyl Superoxides. Nammlooze Venootschap Internationale Oxygenium Maatschappij "Novadel," Devenier, Holland. April 7, 1925.

441,867—Chrome Containing Dyestuffs. I. G. Farbenindustrie A. G., Frankfurt. Aug. 7, 1925.

441,858—Working Up Paraffin-Containing Crude Oil. P. T. Sharples, Philadelphia. Feb. 28, 1922.

441,769—Tanning Hides. I. G. Farbenindustrie A. G. Nov. 15, 1923.

441,700—Tanning Material from Sulphide Liquors. I. G. Farbenindustrie A. G. April 4, 1925.

441,934—Organic Substances for Increasing the Light Sensitivity of Emulsions, for example gelatine-silver haloid emulsions. Eastman Kodak Co., Rochester. June 4, 1925.

441,910—Continuous Lixiviation of Sugar-Containing Matters. Societe Anonyme des Etablissements A. Otier, Clermont-Ferrand, France. July 29, 1922.

441,697—Purifying Starches. Dr. K. Bratring, Dresden. Jan. 16, 1924.

FRENCH PATENTS

Issued April 21, 1927

624,244—Treating Residual Dilute Acetic Acids to reuse them. Societe Chemique des Usines du Rhone. Feb. 26, 1926.

624,369—Persulphuric Acid and Salts, by electrolysis of sulphuric acid. Oesterreichische Chemische Werke G. m. b. H. Nov. 9, 1926.

32,110 Addition to 627,131—Controlling Speed of Oxidation. The Roessler & Hasslacher Chemical Co. July 6, 1926.

624,277—Absorbent Charcoal. Societe Anonyme des Engrais et Noir Animal. Mar. 3, 1926.

624,285—Refining and Stabilizing Natural Hydrocarbons. Societe Internationale des Procedes Prudhomme. Mar. 4, 1926.

624,323—Recovering Dusts, etc. J. B. Guillet. Sept. 11, 1926.

24,383—Mixing Liquid and Gas, apparatus. W. L. J. Spicer. Nov. 9, 1926.

624,258—Preserving Wood. Z. Hadnagy. Mar. 1, 1926.

624,274—New Plastic and process. Societe de Production de Matieres Isolantes et Moulables. Mar. 3, 1926.

TURPENTINE CUPS

Production of turpentine during the present season (1927-1928) is expected to be considerably greater than in recent years, judging from the number of new turpentine cups sold during the winter. According to data compiled by the office of Naval Stores Investigations, Bureau of Chemistry, sales of cups amounted to 32,310,000, equivalent to 3,231 crops of 10,000 cups each, an increase of 57 per cent over the number sold for last season (1926-1927), which amounted to 20,500,000, equivalent to 2.050 crops.

For the season 1925-1926 only 10,059,000 new cups, equivalent to 1,006 crops, were sold, the smallest number sold since the bureau began compiling the data. For 1924-25 there were 13,249,000 cups sold, and for the preceding season 24,828,500 cups were produced and sold to turpentine operators. Ten producers of turpentine cups have assisted in the compilation of the 1927-28 data by supplying the figures on their own production and sales.

Mathieson Alkali Works has filed a complaint with Interstate Commerce Commission against Louisville & Nashville Railroad. The company requests the Commission to require the establishment of reasonable rates on non-liquid caustic soda and soda ash, in carloads, from Saltville, Va., to Anniston, Birmingham and points customarily taking the same rates, Pell City and Talladega, Ala. The company claims reparation.

FLUORINE COMPOUNDS EXPANDING

(Continued from page 860)

sodium fluoride or some other fluoride as their basis and here again the fluorine compounds combine advantages not possessed by other moth-proofing compounds, being odourless, harmless to the fabric, without color and not otherwise objectionable.

Aluminium fluoride in conjunction with small quantities of sulphuric acid is being used to moth-proof permanently woolen goods on a fairly large scale. In Germany, quite considerable quantities of fluorine compounds are sold as vermin destroyers, there being at least nine silicofluorine compounds with trade names. Recently in America, fluorine compounds have come prominently to notice as effective insecticides for the Mexican bean beetle and the cotton weevil. Sodium fluoride, either alone or mixed with about nine parts of lime is most effective, being both a contact and stomach poison. It has advantages over arsenic in that it is cheaper and not nearly so poisonous to human beings. It has been used in America against chicken-lice, roaches, tobacco hornworms, flea-beetles and potato-beetles, and cotton boll weevils with perfect results. Sodium fluoride has also come so much to the fore in America as an insecticide that the Bureau of Standards has issued a specification to which the product should comply. The purity specified is much lower than the standard of English-made sodium fluoride.

Recent work by the German chemists, Gerngross, Bang and Sandor has shown that many of the synthetic tannins may be readily identified by the fluorescence of their solutions in ultra-violet radiation. They were led to this work by the fact that the naphthol sulphonic acids and the anthracene sulphonic acids very often possess a distinct fluorescence in ordinary light. The results showed that solutions of the synthetic tannins at dilutions of about one part in one thousand fluoresce strongly in most cases when subject to quartz-lamp radiation filtered to allow the passage only of waves from 50 to 310 Angstrom units in length. None of the natural tannins was found fluorescent in ultra-violet light, whilst a violet fluorescence was shown by Tanin F, Leukanol, Tanin C, Tanin G3, Neradol MD and FB, Carbatan, Queol D, De Ka, Hausa, Saxonia, Calnel and Diatan OO. A red fluorescence was given by Ewal and a blue fluorescence by Ordoval G, Sorpanol, Tannesco and Diatan CC. The following synthetic tannins did not fluoresce at all: Tanin AS, carbon tannin, neradol D, tannin W, clarex, prytan, maxyntan, neratan, cortannol, and carbatan N and F.

[*New Incorporations*]

Foundation of the Research Laboratory of the Canners Council of U. S. A. at the University of Cincinnati, In., Wilmington, Del., research work in relation to tanning industry.

Great Northern Chemical Co. of California, San Francisco, Cal., $50,000; S. H. Neilsen, H. M. Swanson, Fred Gesler.

Nuart Products Corp., New York, 3,000 pf., 40 shares, com., celluloid products.

Reptile Tanning Co. New York; $20,000.

International Exterminator Co., New York; $10,000; chemicals.

Union Match Co., Brooklyn, N. Y., $100,000.

Associated Booteries, New York, $1,500,000; hides, skins, leather.

Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Can.; $1,950,000, and 150,000 shares, common, no par; manufacture rubber products; Samuel C. Wood, Guy M. Jarvis, Alan C. Jarvis.

Canadian Soil Amendment Co. Ltd., Montreal, Que., Can., 2,500 shares, no par; manufacture chemicals; Emile Massicotte, Joseph M. Guindon, Blanche Despardins.

Radium Products of Cal., Stockton, Cal., $150,000; Fred L. Steed, Geo. W. Bollinger, A. Parker Smith.

Mem Co. Inc., San Francisco, Cal., $25,000; chemicals and dyes; Henry Mottet, Albert C. Evans, Alexis Martin.

Blu-Lac Products Co., San Francisco, Cal., $200,000; Ferdinand Bendheim, Ed. Bendheim, Peter Rasmussen.

San Diego Lead Products Co., San Diego, Cal., $200,000; F. C. Talbot, William P. Bates, V. R. Hill.

American Dye & Chemicals, Inc., Newark, N. J., 1,000,000 shares pf., 50,000 shares common.

American Ilmenite Corp., Wilmington, Del., 10,000 shares, no par; chemical acids.

Manufacturers Chemical Corp., New York, $20,000.

Jabex Mfg. Co., Camden, N. J., $125,000; chemicals.

Cherokee Cotton Oil Co., Dover, Del., 12,500 shares, no par.

Naval Products Co. of Central America, Inc., Wilmington Del., $500,000; turpentine and resin extractors.

La France Plushes, Ltd., Woodstock, Ont., Canada; $250,000; manufacture textiles; Archibald V. Caya, Leslie A. Keoppel, Carl S. Burlet.

Dominion Carbide Exporters Ltd., Montreal, Que., Canada; $600,000; manufacture chemicals; William F. Macklaier, James B. Taylor, Paul H. Hecht.

Canadian Scottish Distilleries, Toronto, Ont. Can., $500,000; William L. Steele, Norman Stuart, Gerald Murphy.

National Products, Inc., Quincy, Ill., $10,000; fungicides, insecticides, & alkalies; H. H. Lake, Mearle Phillipson.

San Bernardino Tanning & Mfg. Co., San Bernardino, Cal.; $150,000; Paul H. Math, Fern T. Bush, Eliza A. Brundige.

Consolidated Biological Products, New York, $20,000; chemicals.

Fine Chemicals, Inc., Newark, N. J.; $50,000 pr., 1,000 shares, common.

Colfax Dyeing Co., Paterson, N. J.; $50,000.

Colvin & Servis, Inc., Rahway, N. J., $125,000; gutta percha.

[*Catalogs & Bulletins*]

Publications listed here are issued by manufacturers and may be obtained free by addressing CHEMICAL MARKETS.

Air Filters. Give illustrations and description of improved air filters designed for electrical ventilation, air compressors, oil and gas engines, drying operations and bacteria control designed to eliminate soot, dust, grit and air-borne bacteria from air, to save wear and tear on equipment and facilitate drying of foods, chemicals, textiles, paints, varnishes, etc. 12 pp. Reed Air Filter Co., Louisville, Ky.

Aluminum Paint. Bulletin giving discussion on composition, characteristics and special properties of aluminum paint for securing maximum efficiency in lighting, waterproofing and radiation of heat, supplemented by specifications for mixing and applying, with illustrations showing many uses by a number of prominent concerns. Aluminum Co. of America, Pittsburgh.

Ascoloy. Bulletin giving physical characteristics, effects of 175 chemical solutions including corrosives, other chemical and physical data about Ascoloy and how it is affected by welding, forging, impact; and other technical information regarding it. Allegheny Steel Co., Brackenridge, Pa.

"Cal." Bulletin telling what this product is, its properties, when and where its use is vital and its strengthening powers to cement construction, how it figures in curing and densifying processes, and other important features which make it valuable wherever concrete work is going on. North American Cement Corp., Cal Division, Hagerstown, Md.

Carbonization of Coal. Describes with illustrations KSG process for low-temperature carbonization of coal supplemented by detailed technical description of operation, results obtained, by-products, economic features, etc. 12 pp. International Combustion Engineering Corp., 200 Madison ave., New York.

Centrifugal Air-Separator. Shows how dry centrifugal air-separators speed up grinding operations, increase production, and improve quality of products. Specially adapted to abrasives, coal, coke, clay, carbons, ores, dyes, cement, food industries, and practically all other dry ground materials. 8 pp. Robert M. Gay Co., 114 Liberty st., New York.

Chemical Stoneware. Gives illustrations and descriptions of stoneware and tanks, vats, trays, etc., for photo engraving, electrotyping, rotogravure, and other chemical processes. U. S. Stoneware Co., Akron, Ohio.

Compressors. Bulletin describes and illustrates several types of compressors adaptable to use with air, oxygen, hydrogen, helium, natural gas, etc., and useful data for compressor operation in general. Norwalk Co., S. Norwalk, Conn.

Conveyor Weightometer. Gives interesting description and illustrations of construction and tells how the weight of material in motion is recorded, with blueprints and other technical data showing principle of operation and installation, and photographs of actual installations. 24 pp. Merrick Scale Manufacturing Co., Passaic, N. J.

Drum and Barrel Washers. Leaflet giving description and illustrations of washer with outside soaker designed for removing oil, grease, varnish, paint, etc., from barrels and drums. Eureka Machine Co., 2610 Vega ave., Cleveland.

Eductors. Gives description, illustrations, and particulars of installation and operation of water jet eductors designed for liquid and sand pumping and other applications. 32 pp. Schutte & Koerting Co., Philadelphia.

Electric Motors. Illustrates and describes several types of enclosed, self-ventilating motors, specially adapted to meet chemical plant requirements, 4 pp. Allis-Chalmers Mfg. Co., Milwaukee.

Ferro-Chem. Bulletin describing interesting scientific process for treating feed water to prevent corrosion and scale in boilers and other water-handling equipment. Wheelock-Bouge, Inc., 141 Milk st., Boston.

Bulk Storage Tanks. Bulletin containing many illustrations of bulk stations of every type. It also has a list of standardized tank sizes with specifications and drawings. Graver Corp., East Chicago, Ind.

THE CHEMICAL INDUSTRY DURING THE PAST YEAR

(Continued from page 856)

or improved packages has insured harmonious action on the part of all interests affected. As a result of this policy changes or additions to regulations and specifications as agreed to prior to their entry in the docket have not been altered nor has effective opposition developed in their presentation to the Interstate Commerce Commission. Certain types of fibre drums have been investigated and condemned as unfit for class B containers. This has stimulated experimental and development work on this type of package to a degree which has already resulted in the production of fibre drums suitable for inclusion in the regulations for Class B poisons. This same result followed the rejection of certain types of paper bags, and single trip metal drums, development work on both resulting in a variety of packages that provide a wider selection for our Class B Poison products. The expense of this development work has in a number of cases been heavy, but it has been borne by the package producers without cost to our industry. Our interest has not been confined exclusively to the production of our own business, an illustration of which is the recent acceptance by the ICC of a specification and alteration of regulations which will permit the paint industry to ship products as lacquers and other similar flash point materials in corrugated paper cartons or boxes.

Since the effective date of packages (September 1, 1926) which were sponsored by our Association, no complaints have been registered by the railroads with the Bureau of Explosives.

Carboy Committee

The work of the Carboy Committee during the year has been directed mainly to perfecting minor details pertaining to ICC Specification No. 1, such as improved gaskets for carboys, reduction in nails required for carboy box covers on carboy boxes of the wood strip packed types, this to facilitate the removal of covers for inspection purposes. Consideration also has been given to methods of loading and bracing carboys in carload shipments. Various methods have been tried out experimentally to determine the best means of securing the largest safe load with the minimum of bracing.

The annual report of the Bureau of Explosives for 1926 shows a gratifying improvement in the accident and damage record for all acids transported in carboys with the single exception of nitric acid. This record should continue to show improvement as the carboys in circulation throughout the country are brought up to the strain test standard recommended by the Committee and now a part of ICC Specification No. 1. Continued vigilance in the inspection of carboy bottles before packing and careful supervision over packing practice should give such immunity from complaint as to make further tightening of the ICC No. 1 requirements unnecessary.

To effect improvement in the shipment of nitric acid various types of containers have been suggested of which the following seem the most promising:

1st—Production of a bottle of Pyrex or other equally tough glass as a substitute for the present glass bottle.

2nd—Drum shipments (35 gal. and 55 gal. capacity) in drums made of steel containing a high chrome content (15 to 18% chrome)

In either case the cost of the package would exceed

the cost of the present carboy, gallon for gallon. This committee is prepared to make a complete study of the nitric acid container problem.

Traffic Committee

All groups in our association are represented on this committee so that problems developing in any branch of the industry may be reported for concerted action, providing competitive conditions do not prevent. Close relations with technical committees dealing more especially with the problems of transportation are maintained to effect co-ordination of effort. During the year a series of standard designs for tank car placards was prepared by members and recommended for approval by your Executive Committee. The purpose of this placard revision was to bring about adoption of a design which should designate graphically by distinctive markings the several groups listed under the dangerous articles class. Also by providing that the group placard bear the actual name of the commodity transported it became possible to reduce from six to four the number of placards required on our tank cars. These recommendations were approved by the Bureau of Explosives and later were submitted to the Interstate Commerce Commission with the endorsement of our Association and the Bureau. It is believed that in due course the Commission will publish regulations providing for the use of the revised placards.

Recommendation was made by this committee and approval voted by your Executive Committee that appearance be entered in opposition to legislation conferring Interstate Commerce Commission jurisdiction over motor transport.

A proposal to establish joint rates on by-product acid from a point in Canada to points in Central Freight and Western Trunk Line Association territory was brought to the attention of this Committee and recommendation was voted to oppose such proposal before rate-making officials of the American Railroads. Proper representations were made with the result that assurances were given no action would be taken prejudicial to domestic manufacturers.

A proposal to increase the minimum weight from 30,000 to 50,000 pounds on anhydrous ammonia in tank cars was opposed and appearance was entered at a hearing before the Official Classification Committee in New York last October. Shortly thereafter notice was given our representatives that the proposal had been withdrawn.

Application was filed with the Consolidated Freight Classification Committee for reduced rate on returned acid in tank cars. Under existing rule the returned acid, if given commercial consideration, bears the rate applicable to less carload quantities in bulk in barrels. We recently were advised that all Classification Committees have approved our application and there will shortly be published the following rule as an Amendment to Section 6 of Rule 35 of the Consolidated Freight Classification:

"If a tank car is not completely unloaded at destination and the remainder of the lading is returned in the same car to a plant of original shipper the weight thereof must be declared by the receiver, and will be charged for at actual or lawfully estimated weight and carload rating or rate applicable for movement in tank cars; except that if the substance returned does not exceed 2% of the original load, or if no commercial consideration is given to it the weight thereof need not be declared and no charge shall be made for it.

"No commercial consideration shall be deemed to be given to the remaining substance if the purchaser or consignee of the original load is not credited with it,

or if it is discharged as waste before the car is again loaded."

Authorization was given by your Executive Committee, on recommendation of the Traffic Committee for support of a protest against proposed cancellation of commodity rates on empty returned containers in Western Trunk Line territory. Cancellation of existing rates would impose heavy burden upon chemical manufacturers who have perfected drum and barrel containers suitable for continuous service with the implied understanding that reasonable rates would be allowed for transportation of the returned empty package.

Support was given to a proposal for reduction in the policing charge of $25 now imposed by railroads on tank cars containing liquor or ethyl alcohol. The members of our Association immediately affected by this charge have proposed to the carriers as a substitute that the free time of forty-eight hours be cut down to twenty-four hours and that an extra demurrage charge of ten dollars be imposed for unloaded cars remaining over that time on company tracks. This matter is now pending before the Western Rate committees.

Shippers Advisory Board

We have continued membership on the Atlantic States Shippers Advisory Board, our Secretary being Chairman of the Chemical Committee. Uniformly satisfactory service by the carriers during the year has reduced the number of complaints filed with the Board so that the chief value of membership at the present time is in the opportunity afforded for personal contact with operating officials of the carriers. The meetings have been exceptionally well attended, all railroads included in the territory being represented by responsible officials.

Legislation

The Federal Caustic Poison Act (Public No. 783, 69th Congress), was approved March 4, 1927. Measures including some or all of its provisions had been before congress in every session in the last five or six years.

The Act provides that the poison label and direction for treatment in case of accidental injury shall be placed upon packages suitable for household use containing certain acids and alkalies. The bill was sponsored by the American Medical Association who announced its purpose was to protect against danger from lye poisoning. The original object was greatly extended, however, and many chemicals not ordinarily used in the household nor yet the cause of personal injury accidents, so far as the medical records reveal, were included within the provisions of the bill. Through the efforts of the Chairman of a special committee of our Association, A. G. Rosengarten, an amendment to the bill was adopted in the form of an exception to the label requirements which, it was stated by eminent legal authority, would relieve manufacturers of the obligation to place directions for treatment on packages for other than household use.

Administration of the Act is committed to the Department of Agriculture and enforcement of its provisions and of the regulations to be promulgated thereunder will be by the Bureau of Chemistry.

Owing to failure of Congress to pass the second deficiency appropriation bill no funds are at present available for expenses of administration, and the Chief of the Bureau has said that for all practical purposes it will not become effective until after Congress convenes in December. Section II of the Act provides that it "shall take effect upon its passage; but no penalty or condemnation shall be enforced for any violation of the Act occurring within six months after its passage.

This suspension of operation of the law will enable manufacturers to study its effect upon their products with

a view of submitting suggestions for the form of regulations to be prepared. Plans of the Bureau, provide for a hearing on tentative regulations to which representatives of interested companies will be invited. It is expected that from the attendance at the meeting a small committee will be appointed with authority to represent the industry in all negotiations with the Bureau until final draft of the regulations is approved.

It is evident from discussions with Bureau officials on several provisions of the Act, and their interpretation, that there are some clauses in need of clarifying. Especially is this need apparent in the case of the exception above referred to, designed to relieve manufacturers of the requirement of the directions-for-treatment label on packages for other than household use.

Officials of the Department, who will advise in the preparation of the regulations, have raised a doubt as to the all-inclusive effect of the exception, submitting the suggestion that acids or alkalies put up for laboratory or other technical use might be in packages that would be suitable for household use, and accordingly, might be brought within the provisions of the Act. They were not ready to concede that a label bearing the word, "Not for Household Use," would relieve the manufacturer of the obligation to place directions on the container. However, they gave assurance that it was the intention to draft regulations that would be reasonable in character.

Patent Law Amended

Several important measures amending the existing patent laws were enacted in the last sessions of Congress and as this is a subject of immediate interest to our members, analysis of the bills was made and report of their progress was noted during the session. The bills are briefly as follows:

H.R. 7563: Provides that patent owners shall mark their devices with the patent number instead of the patent date as under the old law. The reason for this requirement is that many patents are issued each day and in search for information much time is consumed by the patent office force in going over the patents issued as of the date described. With a definite number to guide the clerical staff much time will be saved.

H.R. 15537: This act increases the Board of Examiners-in-Chief from five to six. The fees for obtaining patents remain as under the old law except that for each claim in excess of 20 an added fee of $1.00 is required. When the patent is granted an extra charge of $1.00 for each claim in excess of 20 is made on the printing and filing fee.

S—4957: Provides that in proceedings brought for the infringement of a patent and the patent is held valid and infringed but has not expired, an appeal will be permitted to the Circuit Court of Appeals before the ordering of an accounting instead of afterwards. Heretofore in such case the parties would have to go through an accounting proceeding, which sometimes cost thousand of dollars, and if the appellate court reversed the lower court, these accounting proceedings were entirely wasted. By permitting an appeal before ordering an accounting this objection will be overcome and large savings in useless litigation will result.

S—4812: Provides for important changes in procedure regarding appeals to the courts. Heretofore an applicant could appeal to the Court of Appeals of the District of Columbia and if the court's decision was adverse he could then start de novo by filing a bill of complaint in the United States District Court under Section 4915 R.S. and if the decision there was unfavorable he could appeal to the Circuit Court of Appeals. Under the new procedure he can make his election between appealing direct to the Court of Appeals of the District of Colum-

bia or filing his bill in equity under Section 4915 R.S. But he cannot do both, as heretofore. Right of appeal to the Circuit Court of Appeals is permitted in the same way as under former procedure.

The bill also provides for a single appeal within the Patent Office. Heretofore, there has been an appeal to the Board of Examiners-in-Chief and a second appeal to the Commissioner. A new Board of Appeals is provided, consisting of the Commissioner, the two Assistant Commissioners and the Examiners-in-Chief, any three of whom may constitute a quorum. This not only provides for a single appeal but makes it possible for two appellate boards to sit simultaneously.

Action was withheld on the bill S-4927, which would authorize extension of patents to veterans of the world war for a term of three times the length of their service in the military or naval forces between April 6, 1917 and November 11, 1918. The Patent Bar and industrial organizations, including our association, opposed this measure and it died in the committee. It was pointed out at the hearings that enactment of the law would work grave inequities on patentees, besides causing endless confusion in the Patent system.

Foreign Commerce Service

Your Executive Committee endorsed the purposes of the bill, H.R. 3858, to establish in the Bureau of Foreign & Domestic Commerce, Department of Commerce, a foreign commerce service of the U. S., and through formal action and by individual letters urged its enactment. The bill passed a few days before the close of the last session and by its terms this important activity of the Department of Commerce acquires a status which assures continuing appropriations for its maintenance.

Customs and Prohibitions

The bill for re-organization of the Customs and Prohibition Services by establishing a separate Bureau for each in the Department of the Treasury is an administrative measure in which our Association has a degree of interest. Whatever makes for greater efficiency in these two bureaus has the approval of your executive committee and it is our hope that administration of the Prohibition Bureau will be conducted with proper regard for the necessities of legitimate industry.

War Claims Bill

One of the unfortunate results of the filibuster that blocked business in the Senate during the last days of the 69th congress was the failure of the War Claims Bill, which had passed the House and would have received a majority in the Senate if a roll call could have been ordered. American claimants as well as Germans who have waited nearly ten years for settlement or return of their property had given assent to provisions of the bill and it was hoped this vexing question might be brought to a satisfactory conclusion. Some of our members have a large financial interest in this bill and we were kept advised of its progress. Since there is a general demand for settlement it is quite likely a bill of this character will be passed in the next session of Congress.

Insecticide Mailing Bill: We regret to report that this bill which for several sessions has been favored by your Association again failed to win approval of the Post Office Committee of the House. The bill, like its predecessor, was passed by the Senate but opposition of postal authorities was sufficient to stay its progress in the House. We still believe this bill a meritorious measure and because of the exceptional service it would afford all classes of agriculturists by carrying convenient packages of insecticides, disinfectants, etc., to the farmers' doors it should receive favorable consideration of Congress.

Stream Pollution: Bills to prohibit discharge of industrial waste into the inland streams of the country were introduced in the last Congress, but as has been the case for the last half dozen years they failed of enactment. It is apparent that this subject is one Congress is approaching with commendable caution, adopting the view so often recommended at committee hearings that until more detailed information of scientific nature is available it would be unwise to pass laws that might work irreparable damae to industry. A report of a two-year survey of inland streams conducted by the War Department found that pollution was due to domestic sewage and industrial waste, the former being responsible for 90% of the whole. Industrial waste was divided among the following lines of activities: oil, coal-mining washer waste, acid mine drainage; coal distillation; pickling, cleaning and blowing waste from metal trades; pulp and paper mills; tanneries; washing, bleaching and dyeing waste from textile industries.

In regard to pollution from acids the report stated that acid mine drainage, and acids discharged from plants making metal products were injurious to metal hulls and oilers of boats and to the metal parts of navigation structures in the lower Allegheny and Monongahela Rivers and the Upper Ohio River.

International Economic Conference at Geneva

We viewed with some concern certain preliminaries to the International Economic Conference that convened in Geneva on May 4, observing upon the part of Germany, especially, a purpose to bring the American tariff system in its relation to the chemical industry under Conference disapproval. The circumstances attending preparation of the several monographs on the chemical industry and the withholding of these pamphlets from American manufacturers mark a course that we find difficult to understand. The Preparatory Committee for the Conference nearly a year ago assigned to Germany the perhaps not unwelcome task of writing the first monograph, wherein is set forth the case for removal of tariffs upon chemical products. Copies of this monograph were given to France soon after their receipt at Geneva; to England late in December, with a time limit imposed for preparation and filing of a reply; but to America copies became available only after the conference began its sessions. In the German discussion of the coal-tar dyes industry it is stated that "although several countries shared in its beginnings, the leadership soon went over to Germany. This country developed the coal tar dyes industry to a major industry and supplied 88% of world consumption before the outbreak of the war."

With total production in 1924 quantitatively about the same as in 1913, the German production has declined to 46% of world output. It is therefore argued that "despite the numerous existing old and new coal tar dyes industries, the possible turnover of each can only be a fraction of that which Germany had alone before the war. The result is that in each one of these industries a thoroughly unhealthy ratio exists between general costs and direct manufacturing costs (expenditures for raw materials, power and wages.) Thus, as a matter of fact, in none of the new producing countries have these industries been able to develop and maintain on their own industrial momentum. Not only has it been necessary in numerous countries to appropriate public funds to finance them, but the domestic market must be protected by high tariff walls, and even import prohibitions must artificially regulate and restrict the influx of foreign dyes."

To which statement there is respectfully submitted from the preliminary report of the Census of Dyes and Other Synthetic Organic Chemicals for 1926, by the U. S. Tariff Commission, paragraphs appearing earlier in this report.

When the time came for consideration of resolutions, it was hoped that members of the American Delegation might have before them, for their guidance, a copy of the message of President Wilson cabled to Congress from Paris on May 20th 1919, in which he said:

"The experiences of the war have made it plain that in some cases too great reliance on foreign supply is dangerous, and that in determining certain parts of our tariff policy domestic considerations must be born in mind which are political as well as economic. Among the industries to which special consideration should be given is that of the manufacture of dyestuffs and related chemicals. Our complete dependence upon German supplies before the war made the interruption of trade a cause of exceptional economic disturbance. The close relations between the manufacture of dyestuffs on the one hand and of explosives and poisonous gases on the other, moreover, has given the industry an exceptional significance and value.

"Although the U. S. will gladly and unhesitatingly join in the program of international disarmament, it will nevertheless, be a policy of obvious prudence to make certain of the successful maintenance of many strong and well equipped plants. The German chemical industry with which we shall be brought into competition, was and may well be again a thoroughly knit monopoly, capable of exercising a competition of a peculiarly insidious and dangerous kind.

"The U. S. should moreover, have the means of properly protecting itself whenever our trade is discriminated against by foreign nations, in order that we may be assured of the equality of treatment which we hope to accord and to promote the world over. Our tariff laws as they now stand provide no weapon of retaliation in case other governments should enact legislation unequal in its bearing on our products as compared with the products of other countries. Though we are as far as possible from desiring to enter upon any course of retaliation, we must frankly face that hostile legislation by other nations is not beyond the range of possibility and that it may have to be met by counter-legislation."

Table of Hazardous Chemicals

A tentative table of common hazardous chemicals and explosives prepared by a joint committee from the National Fire Protection Association and the American Chemical Society was found upon examination by members of your Executive Committee to contain definitions wanting in accuracy, and imposing requirements for storage of commodities that were unreasonable. A committee representing our Association and the National Fertilizer Association was appointed and a conference was arranged with the National Fire Protection Association for review of the disputed findings. Objection was raised by our committee to paragraphs relating to nitrate of soda and to requirements providing for use of white, red, and yellow labels on materials exempted by I.C.C. regulations. Provisions for containers of material storage also were found to conflict with I.C.C. regulations.

At this conference it was agreed that the paragraphs on Nitrate of Soda which originally had contained the line "in case of fire keep water away" should be modified by substituting the following paragraphs:

"Fire involving sodium nitrate can safely be fought with water in the early stages; at such times it should be flooded with water.

"When extensive quantities are involved in a fire the sodium nitrate may fuse or melt, in which condition application of water may result in extensive scattering

of the molten material, and therefore care should be taken in applying water on to the material after the fire has been burning for some time."

The problem of conflict with I.C.C. regulations arising from requirements for I.C.C. labels was solved by agreement to eliminate entirely from the table all label requirements on materials in storage.

In the matter of containers it was decided to conduct further investigation with a view of harmonizing the table requirements with I.C.C. regulations.

The Chairman of your Executive Committee, who attended the conference with Dr. Reese, offered to appoint a committee to co-operate with the National Fire Protection Association in bringing the table into agreement with I.C.C. regulations and in conformity with the best industrial practice.

Subsequently the committee of our Association prepared a revision of the list of fire hazard chemicals which work was approved by your Executive Committee, and was forwarded to the National Fire Protection Association for appropriate action. Receipt of the revised tables has been acknowledged by the National Fire Protection Association, and the Chairman of their committee has suggested that a joint meeting of the several committees interested in the subject be held in New York, and pending this matter that no action be taken toward promulgating an official table.

THE PRINCIPLES OF EMPLOYMENT CONTRACTS

(Continued from page 858)

in law there must be some valuable consideration paid for it; but this need not be one that is specifically agreed upon as the separate equivalent of the promise to keep the secret.

In a case decided in New York, a woman had a secret formula for making Neufchatel cheese. She sold the factory and the secret, and promised the buyer that neither she nor any of her family would disclose the formula. For this promise, and for the factory and the formula, she was paid one undivided price. Later when a member of her family disclosed the formula, she was compelled to pay damages to the buyer. I have no doubt that such a decision is satisfactory to the community. In this case, the woman promised not only that she would not disclose the secret, but that others who knew it would not also.

The same result would generally be reached, however many and varied are the facts that the employee promises not to disclose. Formulas and processes, machines, methods of doing business, lists of customers, prices, costs, sources of materials—all these and many more one may promise not to disclose. It would seem

to be to the interest of expert chemists that they should guard the secrets entrusted to them as inviolably as do the lawyers and the doctors. Chemical research is well on the way to becoming a recognized profession, with the special privileges, the particular rewards, and the exceptional responsibilities of a profession.

It should be observed that neither the doctor nor the lawyer ever promises to keep anything secret. The duty is put upon him by law, as a member of a trusted profession, so long as he is not released from his duty by client or patient. It should be observed further, however, that neither the lawyer nor the doctor is under any duty whatever from making use of the legal or medical skill and experience acquired in his practice. There can be no doubt that a similar distinction should be made in the case of the chemist; but it may be somewhat more difficult to draw the distinction. He should be free to use his technical experience and skill in making his living, but should not be free to assist competitors by treacherous disclosures. Only those with experience in the industry are competent to attempt to lay down the line separating treachery from reasonable use of experience.

It seems quite clear, however, that blanket promises of non-disclosers and non-use of methods are to be avoided. In extreme cases they would probably be held to be illegal, as being in unreasonable restraint of trade and commerce. But even a lawful contract may impose obligations of so undefined and sweeping a character that they are beyond the powers of ordinary human nature. So far as possible the particular facts to be kept secret should be specified, and the limitation on the employee should never go further than is reasonably necessary for the protection of the employer. Restrictions on the employee as to the application of his expert knowledge should be even more narrowly limited. It is by making the restrictions specific and moderate that the employer can hope to attain the object in view; while the chemical profession should set a standard of inviolable honor as to those specific and moderate restrictions.

Property in Discoveries and Inventions

There remains to discuss the provision that is no doubt the sorest spot of all. Many of the contract forms submitted contained an express promise by the employee to make discoveries, improvements and inventions for his employer. Such was the primary purpose of the employment. But all of them alike, whether such was the purpose or not, expressly provided that all discoveries, improvements, and inventions made by the

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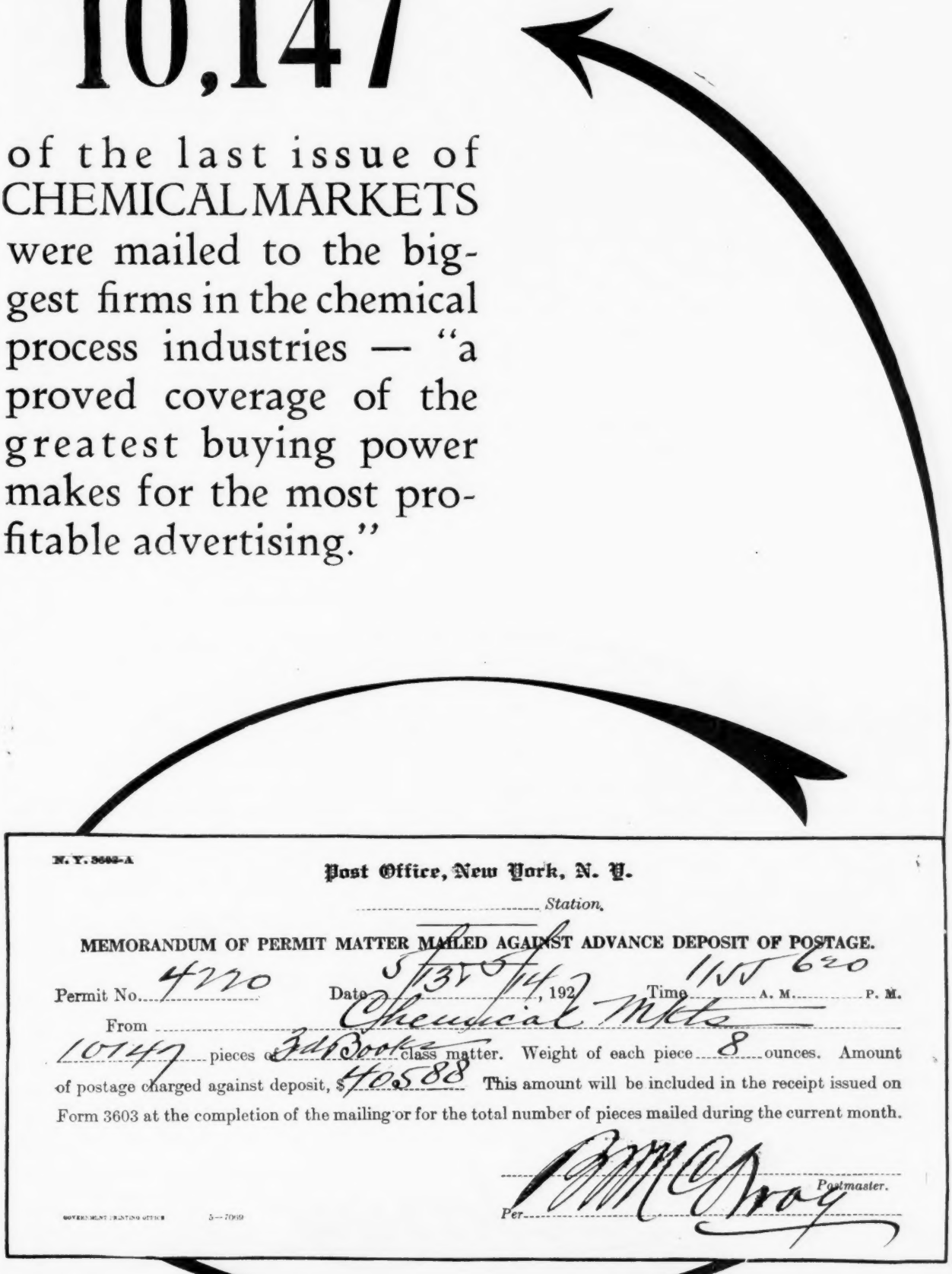

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employee in the coarse of his employment, and in any way relating to the employer's business, should be the property of the employer; and the employee promises to assign to the employer all such inventions, or patents obtained therefor. In only four of the drafts examined did the employer make a promise of special compensation for such discoveries, improvements, and inventions and possibly some of these four drafts had not in fact been used. In eight instances the contract form was accompanied by an informal expression of good will on the part of the employer, and of a definite intention on his part to compensate specially valuable service by an extra reward was to be at the sole discretion of the employer, a discretion that many a wise employer has no doubt used to the entire satisfaction of his employees.

In the absence of any actual experience on the subject, I have a shrewd suspicion that these provisions have given full satisfaction to neither party. I have another shrewd suspicion that experience has demonstrated the necessity of some reasonable provision on the subject. It is likely that the employer has often found himself undermined and robbed of his choicest business by an employee; whereas the contract in its present existing form enables an employer to reap immense profits from the discoveries of an employee, out of all proportion to the compensation given. Without being either an economist or a phsychologist, one may venture to believe that a system of voluntary, hit or miss compensation, without relation to the amount of benefit conferred, does not effectually attain the objects desired by either contracting party.

The problem is considerably affected by the specific work undertaken and by the size of the salary. If an engineer undertakes to use his utmost endeavor to invent a commercially successful kerosene engine, and the employer pays him a large annual salary, carrying all the laboratory expense and all the risk of failure, it would be much more readily endurable to see the employer reap the profits of a successful invention than in the case of one employed and paid only as a routine analyst or assayer. Even in the engineer's case, however, it would seem that another form of compensation would be more likely to produce a successful engine and give greater mutual satisfaction.

What better method of compensation can be suggested? Are not wages fixed by the principle of scarcity, just as are the prices of goods? We have competition between workmen for jobs. When jobs are scarce and workmen plentiful, the economic power is with the employer. When skilled workmen are scarce and demand for the products of industry is large, the economic power is with the workman. But economic power is also directly dependent upon existing law, and law depends upon the notions of the community. Moreover, it is surely not inconsistent with economic principles to measure compensation in part by service rendered. Economic principles do not seem to require that one workman shall get the same wages that another gets

for ten times the service. Many of our large corporations and most successful employers pay on the principle of profit sharing. Surely the work of the expert chemist or engineer is especially suitable for this kind of compensation.

It is not sufficient to leave the compensation for special service at the discretion of either party, even though in many instances the system has worked well. There are no insuperable difficulties in giving the employee a legally enforceable right to some share in the process of discovery. How great a share that should be will have to be discovered by trial and error. If economic principles are violated the error will be discovered. There will frequently be difficulty in determining what the proceeds are, and in segregating them from the proceeds of the entire industrial plant. In all cases, however, some form of arbitration would give reasonable satisfaction. Many of the trades are developing successful arbitration machinery, and it is equally feasible here. Behind the arbitrator's award stands the force of the nation, just as it stands behind the verdict of a jury and the judgment of a court.

A Standardized Contract

Is it possible to improve the relations between industrial employers and their expert employees by means of a standardized contract? I am convinced that it is, especially if it goes along with a better organization of the chemical profession and the building up of traditional duties, privileges, and standards of honor. It must not be regarded as a panacea for ills or as a certain preventative of trouble in the house. Under any form of contract there will be misunderstandings, clashes of interest, and breaches of promise. Under a well-drawn standard contract, these should be reduced in number; and when they arise the problem for the court should be greatly simplified and the result much more certainly predictable. Fewer people would complain of the technicality, the uncertainty, and the injustice of law. Employer and employee would both more surely attain the objects for which they are in the business or profession; and the public at large would get greater value for the money that it pays out.

What should be the contents of this standard contract, and how should they be ascertained? As to what the provisions should be, I feel less able to advise than as to how they should be discovered. There is no doubt, however, that they should be based upon existing experience, and should embody many of the terms of the chemical contracts now in use. A comparative study of those contracts shows much that is common; and it is not very difficult to discover the points in them that are giving the most dissatisfaction. Salaries can be standardized only so far as the principles of scarcity and other economic principles permit; but it is believed that these principles permit the determination of the amount to be paid for exceptional service with some reference to what the service produces, and, in case of dispute, by an impartial arbitration tribunal. An effort should be made to keep the terms of the contract brief and simple in form and not so numerous as to cause them never to be read.

I am more confident as to the manner of drafting the standard contract. It should be done by representatives of all interested parties, especially of group organizations like the Institute of Chemists. The method is in common use and actually works. It is thus that in various trades, such as oil and steel, competitors have been able, under the supervision of public commission, to

standardize by mutual agreement what constitutes fair and unfair methods of trade and competition. The interests of the employers must be represented; otherwise they would accept the contract only with dissatisfaction and their interests might be so ill-protected as to cause them to curtail their scientific undertakings. The employees must be represented for similar reasons. And the public at large should be represented, because their interests also are involved, because the validity and enforcement of the contract depend upon public approval, and because the two contracting parties need a third party to assist in reconciling differences. Drafts could be submitted by interested parties, compared, and subjected to the widest possible criticism. A generally satisfactory result would be certain if the draftsmen undertake the job with an understanding that all interests must be protected, that each party has duties as well as rights and privileges, and that reasonable compromises must be accepted where differences arise. No one employer, or employee, or lawyer has the information or capacity to draft a contract such as this; not the employer or the employee, because neither can fully understand the interests of the other or the feelings of the community, and because of the apparent immediate interest of each would tend to blind him to his higher ultimate advantage; and not the lawyer because, although he may know the law of contracts, he is more ignorant than either of the contracting parties as to all the other elements involved, elements of much more vital importance than the rules of law.

In winding up, allow me to leave fresh in your minds three of my underlying principles: First, the terms of the contract should be such as to square with the generally prevailing feelings and notions of the community. Secondly, there should be a standard form of contract, with the agreed compensation in proportion to service. And thirdly, the provisions in that standard contract should be determined by representatives of all parties involved, the industrial employers, the associated industrial chemists, and the public at large.

AIDING AGRICULTURE THROUGH A TARIFF ON ORGANIC CHEMICALS

(Continued from page 867)

nine basic ingredients for indigo the preparation of yet other products from the resultant by-products must be entered into; thus the manufacture of indigo may be considered as involving directly a score or more different types of manufacture, each of which is unrelated to the indigo plant itself. All of the manufacturing processes must be carefully interlocked and directed toward the end result,—the successful preparation of a dye of uniform strength and purity. Certainly the recent perfection in dye manufacture in America calls for unstinted praise.

Competition and Industrial Progress

We should have competition in everything; but under a protective tariff this competition is all the more necessary. By way of illustration, indigos, of which about 10,000,000 pounds is consumed in this country annually, was offered in New York in 1914, duty paid, as low as 15.1 cents a pound. The first American producer brought this dye on the American market in January, 1927, at $1.25 a pound. By the fall of 1922 three plants manufacturing this dye were in operation and the indigo was selling at about 35 cents a pound. By the fall of 1925 indigo was being laid down, freight paid, at the door of the textile mills at from 11 to 12 cents a pound. The relative value of our dollar today, taken as 65 cents, based upon the pre-war dollar, brings this price of American indigo, produced under a high pro-

tective tariff, to one-half the price at which Germany delivered it in New York in 1914.

The great points of merit which we, as chemists, attribute to the Fordney-McCumber Tariff lies in the organic chemicals schedule. In this is our security as an industrial nation established. Were it not for this particular schedule we would be forced back to our former agricultural status, even though we still manufactured most of the steel and automobiles in the world.

In fabricated material such as an automobile great quantities of organic chemicals are required and their selling price must be kept at a minimum. The finished article, however, is the result of production on such enormous scale that it would be almost suicidal for foreign manufacturers of automobiles to enter our territory. When the cost of an article made in this country is reduced to a minimum there may be no valid objection to reducing the duty on such articles to a point where it equalizes the cost of production at home with that abroad. Such procedure, however, may all too often hang as a sword of Damocles over the particular industry concerned for we all know that countless discoveries are constantly announced and the many changes made necessary in the plant to meet these discoveries quickly might well wreck any ordinary sized organization. The protection, therefore, must be ample in the entire field of chemistry, else some innovation striking us at the weakest point might cripple the structure.

The Future of Cotton

In our early agricultural days we exported considerable quantities of cotton and we shall continue this for yet a few years. It will not be long, however, until the new fields of Brazil and Africa will yield cotton at lower cost and possibly, within ten years we may see cotton from India, Africa and Brazil supplying the textile mills of our own country. The introduction of wood pulp at less than half the price of cotton today, positively eliminates the greater consumption of cotton in our artificial silk plants.

Even now there is under study a very remarkable form of artificial silk possessing such tremendous strength that may make it primarily adaptable for the construction of the ideal automobile tire,—and all from wood. Furthermore, a new artificial leather of superb qualities, made from wood pulp and rubber latex, gives every promise of widespread use so soon as it is introduced upon the market; thus, more and more repressing the sale of leather and cotton cloth.

We must not turn our backs on actual facts; over 62,000,000 pounds of artificial silk was manufactured in this country in 1926, more than 50 per cent increase over the output in 1924, and 10,000,000 pounds was im-

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SALESMAN WANTED: An old established chemical manufacturing firm has an opening for a young salesman, single, in one of their important branch offices in the Middlewest. Position offers opportunity for connection with a growing and aggressive organization. Please give full information regarding education, experience, and salary expected. Address Box 705, CHEMICAL MARKETS.

WANTED. An executive and sales manager by an aggressive company manufacturing a good line of wool and cotton dyes and dyeing specialties. For the man who has a successful record this is an opportunity for the future. Good salary offered. Box 706, CHEMICAL MARKETS.

CHEMIST WANTED for work in small testing laboratory in New Jersey. Experience in Coal Tar desired. Reply fully, giving age, experience, references, salary, etc. to Box 708, CHEMICAL MARKETS.

A prominent manufacturer desires to get in touch with an engineer who is familiar with most modern practise in manufacture of Carbon Bisulphide, and who is able to design the plant and supervise the start of operation. Box 712, CHEMICAL MARKETS.

ASSISTANT TO SALESMANAGER: Wanted by a prominent manufacturer of Solvents young man of unusual ability and initiative, qualified by experience to assist a busy executive in developing sales. Excellent opportunity for right man. To receive attention state full details in confidence. Address BOX 709, CHEMICAL MARKETS.

WANTED—young chemist by well established firm of dyestuffs manufacturers. Must be college graduate. Good opportunity for ambitious man. BOX 710, CHEMICAL MARKETS.

WANTED—Man to handle sales of Red Oil, Stearic Acid, and Glycerine. Very good opportunity for right man. Would prefer a man who has experience along this line. Box 707, CHEMICAL MARKETS.

Raw Materials

CRUDE KAOLIN FOR SALE—About 300 tons Selected High Grade Kaolin in lump form. Immediate shipment from Shuler, So. Carolina. Wire or write Dixiana Clay Company, 53 West Jackson Blvd., Chicago, Ill.

WANTED—Technical Sodium Stearate (Powder preferred) in ton lots, on contract if desired. Quote prices and submit small samples. Also interested in Coumarone-and Indene-Resin, (domestic products). P. O. Box 11, Station A, Berkeley, Calif.

Miscellaneous

ANILINE DYES

We will buy odd lots of acid, basic or alizarine dyestuffs. Send samples and prices to S. N. Cummings, 799 Greenwich street, New York City.

FLYCATCHER

Plants for smallest, medium and large factories, raw material and Al gluing methods are supplied at lowest prices and terms of payment. Prompt delivery. Chemische Fabrik Aylsdorf. Inh. R. Munkner, Zeitz-Aylsdorf, Germany.

WANTED—Manufacturing facilities for synthetic compounds on payment for work done basis. Small dyestuff plant near New York, having refrigerating machinery, would be suitable. Box 641, CHEMICAL MARKETS.

AUSTRALIA—We desire to represent American chemical manufacturers in this country. Highest references exchanged. David H. Davis, Richmond House, 154 Castlereah St., Sydney, N. S. W., Australia.

WANTED

AUTOCLAVE—4-500 gallons; working pressure 200 lbs. with safe margin. No agitator. Preferably copper lined. Direct firing. Please address your answer to Box 644 Chemical Markets.

MANGANESE CARBONATE ORE. Readily soluble in acids. Also for tower packing for saving traces nitric acid in spent gases. Also to utilize spent acids. Write us. Taconic Manganese Mines, Kinderhook, N. Y.

CHEMICAL manufacturing space at Elizabeth, N. J., for rent on short or long term lease. Water, electricity, railroad siding. Can offer one to six separate buildings ranging from 400 to 3,600 square feet; plenty of yard space. The Pan-Organic Corporation, 168 Coit Street, Irvington, N. J. Tel. Essex 4779.

The Chemical Market - place

[Spot Stocks Department]

California

Illinois

Local Market Conditions

CHICAGO

The volume of chemical business done during the month of May in the Chicago district is characterized as fair. Activity on the entire line of chemical products has been rather limited and a logical advance in alcohol and a firm market prevailing on this item is the outstanding change of the month. Otherwise heavy chemicals and items in general passed a rather quiet period. Collections are fair.

BOSTON

General conditions in the New England territory are showing signs of improvement and this condition has been reflected in the chemical business. Denatured alcohol continues to be the outstanding item and interest seems centered in its movement. There have been no important price changes during the month as business, particularly in heavy chemicals has been rather routine. Collections are fair.

KANSAS CITY

Business conditions in the Kansas City territory still continue quite active, with alcohol commanding principal interest in the chemical line. Buyers seem confused with regard to conditions in the failure of large manufacturers to announce Fall prices. Other than alcohol there is little to comment upon, with other items moving in routine fashion. Collections are slowing up.

NEWARK

Slightly more encouraging features were noted during the month of May in the northern New Jersey territory. Compared with May of last year business averages about 5% better. There have been few if any important price changes during the period under report. Alcohol has increased slightly and is very firmly held, though this has not caused any undue interest on the buyers part. A sharp advance

Massachusetts

Michigan

Missouri

The Chemical Market-place

[Spot Stocks Department]

Missouri—(cont.)

New Jersey

New York

Local Market Conditions

in ethyl acetate was rather surprising. However, the advance is warranted as raw materials had previously been advanced. There is the usual off season to contend with on alkalis, but on the whole they are moving as well as can be expected for this time of year. It is predicted that business in this territory will show slight improvement during the next six months. Collections are much better and may be classed as good.

CLEVELAND

With the paint, varnish and lacquer industries running at capacity, business in the Cleveland territory has improved considerably during the past month. Linseed oil turned sharply upward last week, following a long period of low prices. Consumers are using more oil than contracted for and the prevailing price of 10.6c lb. is quoted in tanks for delivery to the end of the year. Alcohol is very slow in this territory, though a little resale material has changed hands. Prices for fall delivery have not been quoted as yet except by a few small distillers. C. P. glycerin is quoted at 25½c@26c lb. with but routine interest. China wood oil is weaker, reflecting conditions at the cost and primary market. Toluol is in good demand while benzol and solvent naphtha have not changed.

PHILADELPHIA

There has been very little change in conditions on the Philadelphia market. Activity has been of fair volume during the past week and the market presents a good tone. Interest in denatured alcohol has quieted down and the buying has been restricted despite an announced further advance by makers. Oxalic acid is quiet, castor oil is in fair demand and copper sulfate, large crystals is moving freely. U. S. P. epsom salts, formaldehyde and naphthaline are all moving well with the price of the latter held at 5½c6c lb. for balls and 4½c@5c lb. for flakes. Caustic potash is also the subject of some attention from the consuming industries.

Ohio

Rhode Island

ported in the same year. And greater yet will be the production for 1927. In 1900 the women of America purchased about 150,000 pairs of silk stockings. By 1926 they purchased about 55,000,000 pairs of pure silk hose and, in addition, some 250,000,000 pairs of interwoven hose of mixtures of pure and artificial silk. Truly the age of silk is upon us and is growing yearly.

The employment of cotton in this direction is less and less. The increased use of pulp from wood of almost the same cellulose content as cotton will make itself felt all the more seriously during the coming year. We may estimate that in 1927, for example, the equivalent of possibly a million bales of cotton will have been replaced in our American markets by the cheaper cellulose from spruce. Evidently the cotton crisis is yet before us. It behooves our southern planters to plant less and less acreage to cotton.

The Future of Corn

The growing of corn for the kernel, whereby only about one-fifth of the total weight of the corn and stalk in the field is utilized, smacks of mediaevalism.

The real future for the corn kernel itself lies in its adaptation, on the one hand, for the manufacture of starch and dextrose (corn sugar) together with corn oil and other by-products; and on the other hand, after degerminating, for direct fermentation into alcoholic compounds; the germ in this case also finding employment in production of corn oil. The residual material will be returned to the farmer as food for live stock.

The use of corn sugar, sometimes termed dextrose, glucose, or bearing the trade name of cerelose, is rapidly increasing. Over 300,000 pounds of this pure sugar is being manufactured daily in this country. Most of it finds use in bread and candies. In 1926, the corn products industry consumed only 76,000,000 bushels of corn, representing however an increase of 10 per cent. over the year 1925. Our total corn crop averages 2,714,000,000 bushels annually, but only about 260,000,000 bushels reaches the primary markets. Of this latter only 28 per cent. enters the corn products industry. Certainly we need to encourage the growth of this industry by making possible a more extensive use of corn sugar wherever its qualifications make it desirable.

Again, the use of corn in the fermentation industries must be greatly increased. The butyl alcohol industry consumed over 5,000,000 bushels of raw corn in 1926. In 1927 the initial step of degerminating is to introduce a material saving and the total amount of corn fermented will approach 8,000,000 bushels. The ethyl alcohol industry consumed about 8,000,000 bushels of raw corn in 1926. In 1927 this will be greatly increased. Imported molasses or blackstrap, however, has constituted the chief raw source of the ethyl or grain alcohol industry. The price of such molasses is about 7-1/2 cents per gallon. The price of corn at the alcohol plant can not exceed that price per bushel as may be represented by a 7 to 1 ratio on the price of the molasses. Thus, in order to compete with molasses on an equal footing for alcohol production we can not expect the corn even of number 5 grade to bring a price much higher than 7-1/2 times 7, or 52.5 cents a bushel.

During the fiscal year ending June 30, 1925, there was produced in this country 166,165,518 proof gallons of alcohol (50 per cent alcohol). During the fiscal year ending June 30, 1926, there was produced 202,271,670 proof gallons of alcohol, an increase of about twenty-

three per cent over the preceding year. We may expect a doubling in our alcohol consumption within the next three years, a prediction more than likely by reason of new adaptations rapidly shaping themselves for chemical utilization of ethyl alcohol. To this end, furthermore, we must recognize that alcohol is a basic product and its price must be maintained at a relatively low figure.

The butyl and ethyl alcohol industries present most promising means for the chemical utilization of corn. These alcohols constitute the basis of countless organic chemical enterprises. When of late we note the importation of one single gallon of butyl alcohol, or its derivative butyl acetate, we know that exactly one bushel of the American farmer's corn has been driven from the American chemical industry. Is there any rational man who can not see what protection on chemicals means to agriculture?

Agricultural By-products

The utilization of corn stalk introduces a number of questions none of which is as yet definitely settled. The last Congress set aside a small sum of money for this particular investigation to be carried out during the coming summer, and we may look for promising results in the fall. The simple processing of corn stalk in the presence of steam or dilute alkali gives promise of yielding a pulp admirably adapted to the manufacture of wall board. This will command our chief interest this summer. Following this will come a further treatment of the rough pulp to rid it of non-cellulose content and thereby bring the cellulose up to 95 or 96 per cent. purity. Such material will find use in the artificial silk industry.

Worthy of note in this connection is the Bergius process as installed on a commercial scale last December in Geneva, Switzerland, for the manufacture of dextrose from saw-dust. Cold concentrated hydrochloric acid converts about 60 per cent. of the cellulose content of saw-dust into dextrose. The lignin portion is not affected. Dextrose can be produced in this process for a price commensurate with its manufacturing cost when made from starch. A British company is soon to erect a plant for the berginizing of cellulose to dextrose. The process is clearly applicable to corn stalks, although the cellulose content of the latter is only about 30 per cent. of its total weight.

Intensive Cultivation Means Higher Revenues

Our industries have not yet reached that point where they can utilize the entire output of the farm. The farmers can help themselves by reaching out for industrial outlets. As our tariff is strongly protective for organic chemicals, it is the bounden duty of agriculturists to avail themselves of this protection and divert their products into every conceivable use. The farmer can no longer hope for success if he insists upon raising crops at random. He must cultivate intensively and apply himself diligently to the scientific study of the problems before him. There is nothing to prevent a group of agriculturists from organizing an industrial institution in some near-by center and then cultivating their farms as feeders to this institution. The ideal method is for agriculturists to take up the cultivation of those particular products which the industries in their neighborhood most desire.

Those who are devoting themselves to dairy farming must begin the use of fertilizers such as urea, a compound rich in nitrogen and one contributing, according to reports from Germany, to such excellent pasturage that leads directly to a doubling in the supply of milk from herd cows.

In general, we use in this country all too little fertilizer. In 1926 there was used 6.4 pounds per crop acre. Is this not pitiful when compared with 200 pounds per crop acre as used in Germany and 674 pounds per acre as used in Holland?

Soon we shall see introduced special treatment for seeds before planting; not only chemical but possibly also electrical.

This same plan of increasing production by intensive farming, together with the installation of co-products for long-time deliveries, makes for the proper balance of operations on the farm. It is exactly the plan our industries are following and with such marked success. The by-products, or those products left over in the production of the main product, are much more easily handled in manufacturing establishments.

Attempts to Bolster Prices Doomed to Failure

The hope that a system of price-fixing will help the farmer should be dismissed from mind. Competition tends ever to hold prices at lower levels. If we introduce any device whereby the price of a staple commodity is to be raised we simply force users of this commodity to seek a counterpart elsewhere. Thus, if cotton is made to advance in price, more wood pulp will enter the industries and, if the price rises too much, the corn stalk is sure to banish the cotton. If corn is advanced in price, more potatoes and starch-containing tubers will be grown to give us our starch dextrose and alcohols.

The agriculturist must remember that he is really only producing celluloses, starches, sugars, fats and proteins as his chemical products. The chemical utilization of new varieties of raw material from Nature, not yet offered to commerce, will only be speeded up by the agriculturist attempting to combat the trend of science. Better is it for agriculture to work with industry of which it is a part.

Of the five main chemical classes of agricultural products, cellulose and starch are in over-production; proteins and certain fats are in fair production; fats from vegetable sources are in under-production and commanding greater interest; sugars, however, are in decided under-production, even in the face of a steadily increasing demand.

Here then lies the key to immediate agricultural progress pending chemical development of the other three classes. The sucrose consumption in the United States is approaching 12,000,000,000 pounds per annum. We grow at home only 18.6 per cent. of the sucrose we consume. We import from our island possessions 22.7 per cent. and from foreign countries we are importing 58.7 per cent. or more than 7,000,000,000 pounds, representing in payment to these foreign countries $360,000,000 annually. Might we not just as well pay this sum to our own farmers? The value of this additional crop would replace one-third of the total annual farm revenue derived from cotton and permit the reduction in our cotton crop by one-third, a procedure absolutely in keeping with present scientific trends.

A higher rate of duty on all forms of sugar inclusive of molasses will operate at once to encourage the growing of sugar cane in extreme southern localities and sorghum in the southern area generally. Cane and sorghum stalks will, of course, find outlet in the wallboard industry whereas the molasses from sorghum, constituting here the end product, will be absorbed completely in the production of alcohol, thus taking the place of our imported blackstrap molasses of which, in 1926, over 269,000,000 gallons was brought in from abroad. Certainly the future for sorghum is immense when we consider the ever-growing demand for molasses in the fermentation industry. *"The Tariff Review"*

Buyers Guide

ACIDS

Coal-Tar

American-British Chemical Supplies, Inc.
Baird & McGuire, Inc.
Barrett Co.
Calco Chemical Co.
Cooper & Co., Charles
Du Pont de Nemours, & Co., E. I.
Greeff & Co., R. W.
Innis, Speiden & Co.
Jordan & Bro., Wm. E.
Monsanto Chemical Works
Roessler & Hasslacher Chemical Co.
Tar Acid Refining Corp.

Organic

American Cyanamid Co.
Cleveland-Cliffs Iron Co.
Cooper & Co., Charles
Eastman Kodak Co.
General Chemical Co.
Grasselli Chemical Co.
Gray & Co., William S.
Greeff & Co., R. W.
Heyden Chemical Corp.
Innis, Speiden & Co.
Lewis, John D.
Mallinckrodt Chemical Works
Monsanto Chemical Works
Roessler & Hasslacher Chemical Co.
Turner & Co., Joseph
Victor Chemical Works

Mineral

American Cyanamid Co.
Cooper & Co., Charles
Du Pont de Nemours & Co., E. I.
General Chemical Co.
Grasselli Chemical Co.
Heyden Chemical Corp.
Monsanto Chemical Works
Pennsylvania Salt Manufacturing Co.

ALCOHOL

Denatured

American Solvents & Chemical Corp.
Berg Industrial Alcohol Co., David
Commercial Solvents Corp.
Federal Products Co.
Gray & Co., William S.
Miner-Edgar Co.
Roessler & Hasslacher Chemical Co.
Seaboard Chemical Co.
U. S. Industrial Alcohol Co.

Methanol

Cleveland-Cliffs Iron Co.
Cooper & Co., Charles
Gray & Co., William S.,
Greeff & Co., R. W.
Miner-Edgar Co.
Roessler & Hasslacher Chemical Co.
Seaboard Chemical Co.

ALKALIES

Arnold, Hoffman & Co.
Church & Dwight
Electro Bleaching Gas Co.
Grasselli Chemical Co.
Innis, Speiden & Co.
Lewis, John D.
Mathieson Alkali Works
Michigan Alkali Co.
Niagara Alkali Co.
Pennsylvania Salt Manufacturing Co.
Roessler & Hasslacher Chemical Co.
Solvay Process Co.
Turner & Co., Joseph
Warner Chemical Co.
Winkler & Bros., Co., Isaac

ALUMS

Cooper & Co. Charles
General Chemical Co.
Grasselli Chemical Co.
Greeff & Co., R. W.
Innis, Speiden & Co.
Monsanto Chemical Works
Pennsylvania Salt Co.
Roessler & Hasslacher Chemical Co.

AMMONIA or SALTS

Barrett Co.
Benkert & Co., W.
Cooper & Co., Charles
Dow Chemical Co.
General Chemical Co.
Grasselli Chemical Co.
Greeff & Co., R. W.
Innis, Speiden & Co.
Lewis, John D.
Mallinckrodt Chemical Works
Mathieson Alkali Works
Roessler & Hasslacher Chemical Co.
Turner & Co., Joseph
U. S. Industrial Chemical Co., Inc.

DYE & TAN STUFFS

American-British Chemical Supplies, Inc.
Arnold, Hoffman & Co.
Calco Chemical Co.
Du Pont de Nemours & Co., E. I.
General Dyestuff Corp.
Lewis, John D.
Monsanto Chemical Works
National Aniline & Chemical Co.
Newport Chemical Works
Seaboard Chemical Co.
Starkweather Co., J. U.

FILLERS & CLAYS

American-British Chemical Supplies, Inc.
Arnold, Hoffman & Co.
Burnet Company
Hammill & Gillespie
Innis, Speiden & Co.
Miner-Edgar Co.
Roessler & Hasslacher Chemical Co.
Wishnick-Tumpeer Inc.

WOOD FLOUR

Burnet Company

PIGMENTS & COLORS

Cabot, Godfrey L.
Calco Chemical Co.
Cooper & Co., Charles
Du Pont de Nemours & Co., E. I.
General Dyestuff Corp.
Industrial Chemical Co.
Innis, Speiden & Co.,
National Aniline & Chemical Co.
Newport Chemical Works
Wishnick-Tumpeer, Inc.

ACCELERATORS

American Cyanamid Co.
Cleveland-Cliffs Iron Co.
Dovan hemical Corp.
Dow Chemical Co.
Du Pont de Nemours & Co., E. I.
Grasselli Chemical Co.
Greeff & Co., R. W.
Lewis, John D.
National Aniline & Chemical Co.
Roessler & Hasslacher Chemical Co.

FERTILIZER SUPPLIES

American Cyanamid Co.
Barrett Co.
General Chemical Co.
Greeff & Co., R. W.
Innis, Speiden & Co.
Roessler & Hasslacher Chemical Co.

INSECTICIDES

Dow Chemical Co.
General Chemical Co.
Grasselli Chemical Co.
Greeff & Co., R. W.
Jordan & Bros., Wm. E.
Roessler & Hasslacher Chemical Co.

INDUSTRIAL CHEMICALS

American-British Chemical Supplies, Inc.
American Cyanamid Co.
American Solvents & Chemical Corp.
American Potash & Chem. Corp. (borax)
Arnold Hoffman Co.
Baird & McGuire, (cresols)
Barrett Co., The
Cabot Godfrey L. (carbon blk.)
Carbide & Carbon Chemical Corp.
Carus Chemical Co.
Church & Dwight (soda bicarb.)
Cleveland-Cliffs Iron Co. (wood chem.)
Commercial Solvents Corp. (butanol)
Cooper Charles & Co.
Croton Chemical Corp.
Dovan Chemical Co. (rubber accel.)
Dow Chemical Co.
Du Pont de Nemours & Co. E. I.
Emery Candle Co.
Electro Bleaching Gas Co. (chlorine)
General Chemical Co.
Grasselli Chemical Co.
Gray William S. & Co., (wood chem)
Greeff & Co., R. W.
Industrial Chemical Co.
Innis, Speiden & Co., Inc.
International Salt Co.
Jordan, Wm. E. & Bro.
Lewis, John D
Mathieson Alkali Works
Merchants Chemical Co.
Michigan Alkali Co.
Miner-Edgar Co. (wood chem.)
Monsanto Chemical Works
Niagara Alkali Co.
Pacific Coast Borax Co.
Parsons & Petit (sulfur)
Pennsylvania Salt Manufacturing Co.
Roessler & Hasslacher Chemical Co.
Seaboard Chemical Co. (wood chemicals)
Selden Co.
Solvay Process Co. (alkalies)
Starkweather Co., J. U.
Turner & Co., Joseph
U. S. Industrial Alcohol Co., Inc.
U. S. Industrial Chemical Co., Inc.
Victor Chemical Works
Warner Chemical Co.
Wiarda & Co., John C.
Winkler & Bros. Co., Isaac (alkalies)
Wishnick-Tumpeer, Inc.

SOLVENTS

American-British Chemical Supplies Inc.
American Solvents & Chemical Corp.
Barrett Co., The
Berg Industrial Alcohol Co., David
Commercial Solvents Corp.
Cooper & Co., Charles
Dow Chemical Co.
General Chemical Co.
Grasselli Chemical Co.
Gray & Co., William S.
Greeff & Co., R. W.
Industrial Chemical Co.
Innis, Speiden & Co.
Lewis, John D.
Miner-Edgar Co.
Roessler & Hasslacher Chemical Co.
Seaboard Chemical Co.
Uhe, George
U. S. Industrial Alcohol Co.
U. S. Industrial Chemical Co.
Warner Chemical Co.
Wishnick-Tumpeer, Inc.

COAL-TAR, CRUDES & INTERMEDIATES

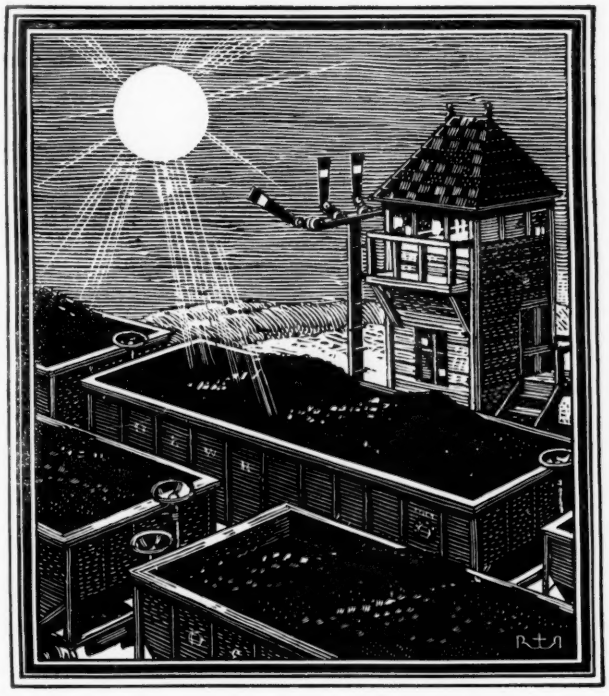
American-British Chemical Supplies, Inc.
Baird & McGuire, Inc.
Barrett Co., The
Cooper & Nephews, Wm.
Calco Chemical Co.
Du Pont de Nemours & Co., E. I.
General Dyestuff Corp.
Grasselli Chemical Co.
Gray & Co., William S.
Jordan, Wm. E. & Bro.
Mathieson Alkali Works
Monsanto Chemical Works
National aniline & Chemical Co.
Newport Chemical Works
Tar Acid Corp.
Wishnick-Tumpeer, Inc.

CONTAINERS

Trageser Steam Copper Works, John
Champion Container Co.
Fetter Steel Barrel Co.
Bemis Bros. Bag Co.

Index to Advertisers

Sold 140 Carloads of coal— *in hot weather*



IT WAS SWELTERING May weather in Omaha—a bad time, you might think, to sell coal. Yet a coal company manager and his assistant compiled a list of 200 dealers in Nebraska, Iowa and Missouri who were good winter customers. Two men in three days made the calls, the charges approximating $200. They sold 140 carloads, $21,000 worth. Ordinarily it took three salesmen two months to cover this same territory. Never before in hot weather had sales run so high.

FROM ALL KINDS OF BUSINESSES come reports of the use of long distance calls to get more accomplished, at less cost. Sometimes a task can be done in days by telephone that otherwise would take months. Business can be secured that otherwise would be lost. Salesmen and executives can conserve their productive time and so increase the good results of their work.

Long Distance is as important to inter-community and inter-sectional business as the local telephone is to local affairs. How can any business concern reach its greatest development without a regular use of long distance calls?

Anywhere is as close as your telephone. Is there some distant call that should be made now? You'll be surprised how little it will cost. . . . . *Number, please?*

BELL LONG DISTANCE SERVICE

AMERICAN TELEPHONE & TELEGRAPH CO. BELL SYSTEM AND ASSOCIATED COMPANIES

R&H — play a vital part in the daily life of JOHN DOE

REG. U.S. PAT. OFF.
CHEMICALS AND SERVICE

CAR riders are consistent readers and our friend is no exception. His thanks should be partly given to chemicals—for paper is produced with Chlorine and PAC Formaldehyde, two important R & H Chemicals, and Printing Ink with Zinc Stearate, Trichlorethylene and Tetrachlorethane.

Around John are other evidences of the need of chemicals. His leather brief case and shoes have been prepared with Epsom Salts, Lactic Acid, Oxalic Acid and PAC Formaldehyde; his woolen clothes were prepared and dyed with the aid of Caustic Potash, Carbonate of Potash, Glauber's Salt, and Formic Acid. Even the fur adorning the lady present owes something to Sal Ammoniac, Potassium Chlorate and Potash Alum, chemicals to be found in the R & H List.

The car is fitted with handles made with Tin Oxide, Feldspar and Zinc Oxide, while the car windows were manufactured with the aid of Cobalt Oxide, Selenium, Antimony Oxide and Feldspar.

R & H Chemicals also contribute to the efficiency of John's office.

(where he will next be seen)

The ROESSLER & HASSLACHER CHEMICAL Co.
709 Sixth Avenue, New York